

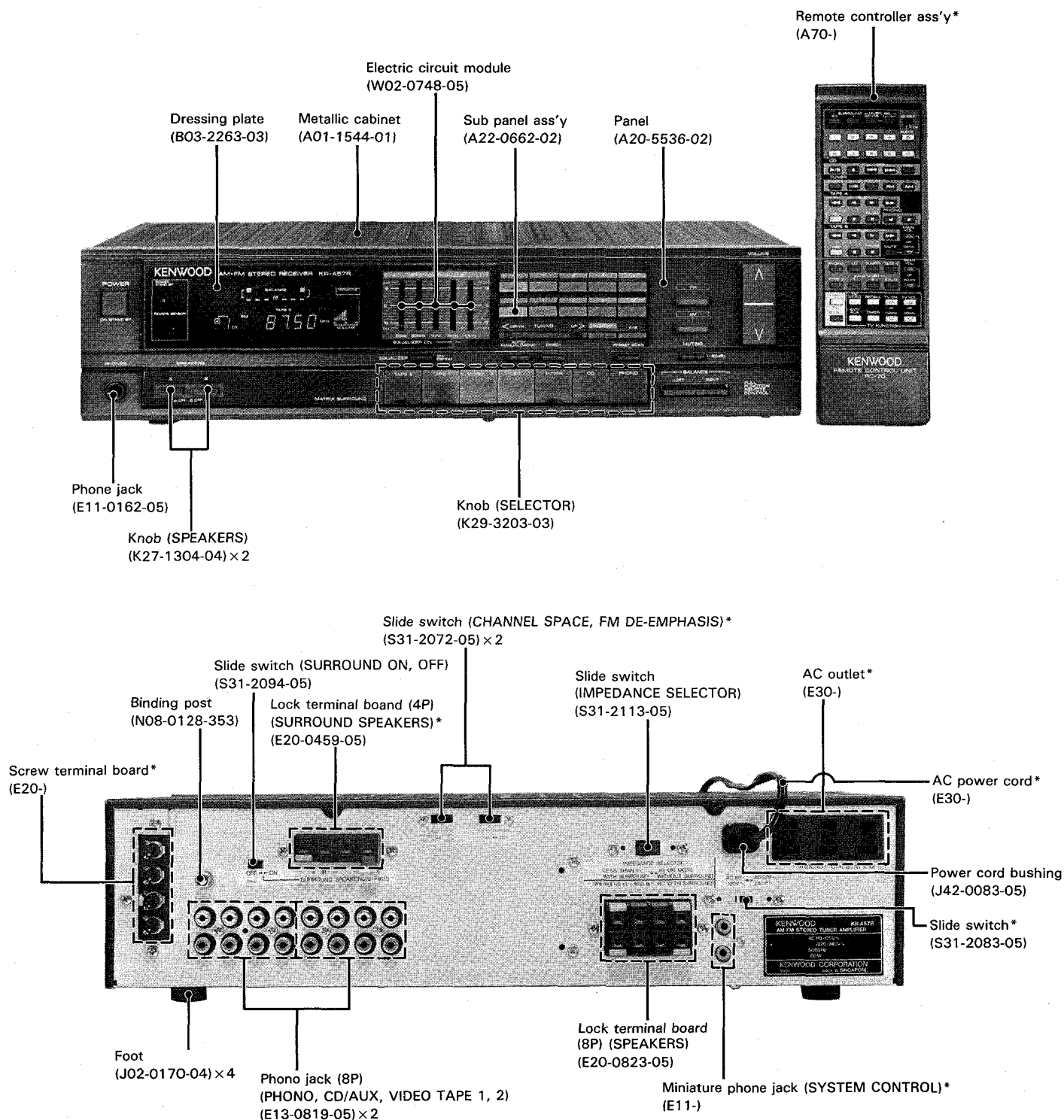
AM-FM STEREO RECEIVER

# KR-A57R

## SERVICE MANUAL

# KENWOOD

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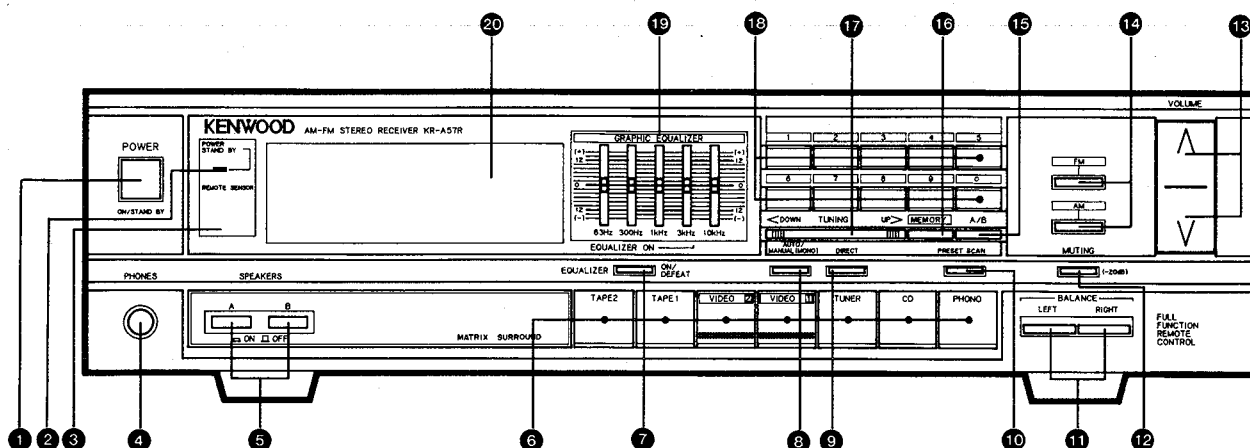


\*Refer to parts list on page 40.

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## CONTROLS, INDICATORS AND CONNECTORS



### 1 POWER switch

By pressing this switch, the power of the unit and the power of the equipment connected to the SWITCHED AC outlet can be switched ON/OFF.

When this switch is pressed, the function selected last or the last station to be received will be displayed. You can operate the switch from a distance with the RC-70 (remote control unit).

### 2 REMOTE POWER STAND BY indicator

Lights when the power cord is connected to the AC outlet. When this indicator is lit, the POWER switch or POWER key of the remote control unit can be operated.

### 3 REMOTE SENSOR

Point the supplied remote control unit towards this sensor and operate.

### 4 PHONES jack

Stereo headphones are plugged into this jack.

### 5 SPEAKERS switch

**A, B OFF** – This position silences all speakers to permit private use of headphones.

**A ON** – Activates speakers connected to the SPEAKERS A terminals on the rear panel.

**B ON** – Activates speakers connected to the SPEAKERS B terminals on the rear panel.

**A, B ON** – Activates speakers connected to the SPEAKERS A and B terminals simultaneously.

#### Note:

When the SPEAKER A and B switches are used at the same time, the speakers connected to the SPEAKERS A and B terminals are connected in series. In this respect, whenever using the SPEAKER A and B switches at the same time, be sure that two pairs of speakers are connected to the terminals A and B, otherwise no sound is output.

### 6 INPUT SELECTOR switches

**TAPE 1** – Used to play back a tape deck connected to TAPE 1 jacks.

## CONTROLS, INDICATORS AND CONNECTORS

**TAPE 2** – Used to play back a tape deck connected to the TAPE 2 jacks. (The TAPE-2 switch is operated in priority to any other audio input switches.)

**VIDEO 1** – Selects the video recorders connected to the VIDEO 1 jacks.

**VIDEO 2** – Select the video recorders connected to the VIDEO 2 jacks.

**TUNER** – Selects the tuner mode for FM or AM reception.

**CD** – Selects the source connected to the CD jacks.

**PHONO** – Selects the program source played on the turntable.

**Note:**

If the setting of the INPUT SELECTOR switch cannot be changed, press other INPUT SELECTOR switch, then press the desired INPUT SELECTOR switch again.

### 7 GRAPHIC EQUALIZER switch

Press this switch to ON and the frequency characteristic will be modified by passing through the graphic equalizer. In the DEFEAT position, the frequency characteristic remains unchanged.

The ON indicator lights when the switch is set to ON.

### 8 AUTO/MANUAL (MONO) switch

Press this switch to select the tuning mode between AUTO or MANUAL (MONO). In MANUAL (MONO) mode, FM stereo broadcast is received in monaural.

### 9 DIRECT key

Press this key while listening to a radio broadcast to set the unit to the direct tuning mode so that the frequency of the desired station can be entered with the numeric keys. Press to set to the direct input standby mode. Press again to return to the last memory of the tuner.

### 10 PRESET SCAN key

Use this key for preset channel scanning. When a frequency stored in the preset memory is being received, pressing this key shifts the reception to the next frequency in the preset memory. (The preset channels are scanned in the order A-1, ..., A-0, B-1, ..., B-0.)

### 11 BALANCE control key

Governs the amount of sound coming from each paired speakers to get optimum stereo effect.

Pressing the RIGHT key will decrease the left channel volume and pressing the LEFT key will decrease the right channel volume. When the BALANCE control is pressed, display window shows the BALANCE indicator.

### 12 MUTING switch

When the muting switch is pressed, the MUTING indicator in the display window will flash, and the overall listening sound level is reduced by -20 dB.

When the switch is pressed again, you can restore exactly the same listening level as before.

### 13 VOLUME control key

This control adjusts the left- and right-channel volumes simultaneously. Set it for the desired listening level. Pressing the up ( ) key increases the volume and pressing the down (V) key decreases it.

When VOLUME control is pressed, the frequency display shows volume level in decibel.

**Note:**

A slight noise is heard from the speakers when operating the VOLUME controls. This noise is the built-in microprocessor control signal and is not a fault.

### 14 FM, AM band switches

**FM** – For FM broadcasts (The FM indicator lights.)

**AM** – For AM broadcasts (The AM indicator lights.)

This switch has the same function as that of the TUNER switch of the INPUT SELECTOR. It is therefore possible to switch directly to the radio reception mode (FM or AM) from any other input mode.

### 15 Preset A/B switch

Each time this button is pressed, PRESET mode A and B is selected alternately (at this time, A or B indicator lights in the display window).

In either FM or AM, 10 stations can be stored into A and B respectively, by frequency. In total, frequencies of up to 20 stations can be preset with this unit.

### 16 MEMORY key

When the input mode is in tuner mode, use this key to store new frequencies in the preset channel memory.

By pressing the MEMORY key, setting the PRESET key to A or B and by pressing one of the preset channel key, the frequency being received is stored in memory in the preset channel key pressed.

### 17 UP/DOWN TUNING keys

**Auto tuning mode** – When the UP or DOWN key is pressed, the frequency automatically increases or decreases until the next station of sufficient signal strength is reached.

**Manual tuning mode** – Each time the UP or DOWN key is pressed, the tuned frequency increases or decreases in the following manner.

**FM** – 50/100 kHz steps

**AM** – 9/10 kHz steps

Refer to page 6 "CHANNEL SPACE switch."

If either key is held down more than half a second, the tuned frequency will continue to increase or decrease until the key is released.

### 18 PRESET (numeric) keys

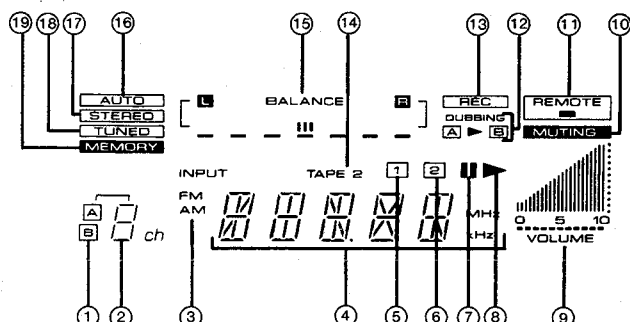
Used to store and recall frequencies in the preset memory. The receiver enters directly to the radio reception mode of the required station from any other input mode by pressing the corresponding PRESET key.

### 19 GRAPHIC EQUALIZER controls

Adjust these controls up and down to equalize the sound by  $\pm 12$  dB to the center frequency indicated.

## CONTROLS, INDICATORS AND CONNECTORS

### 20 Display window



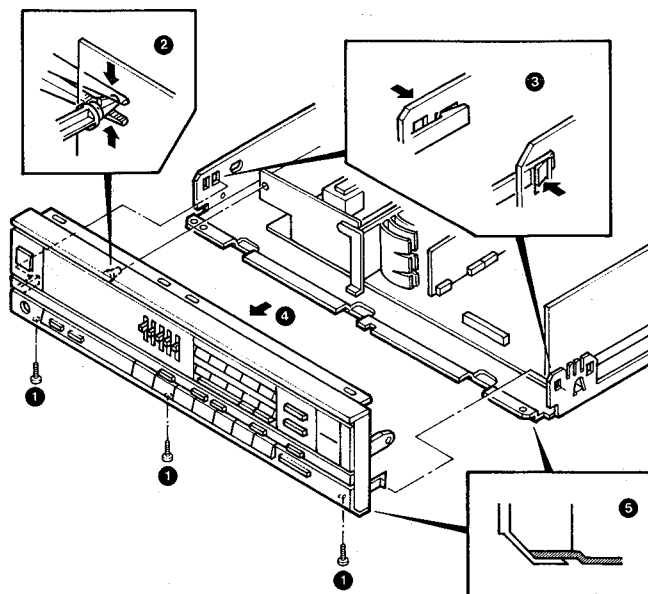
- ① "A" or "B" lights according to the selection of the PRESET FUNCTION buttons.
- ② Displays the preset channel.
- ③ Displays the tuner input mode. "FM" lights during FM broadcast reception, "AM" lights during AM reception and "INPUT" lights during selection of the INPUT SELECTOR without TUNER.
- ④ Displays the input mode display, digital frequency display and decible displays.
- ⑤ Lights when the VIDEO 1 of INPUT SELECTOR is pressed.
- ⑥ Lights when the VIDEO 2 of INPUT SELECTOR is pressed.

- ⑦ This indicator lights when the PAUSE key of the tape deck or CD player is pressed during operation.
- ⑧ This indicator lights when the PLAY key of the tape deck or CD player is pressed during operation.
- ⑨ Indicates the audio volume.
- ⑩ Flashes when the MUTING switch is pressed.
- ⑪ This indicator lights when the unit is operated with the remote control unit.
- ⑫ This indicator lights when tape-to-tape dubbing (copying) is performed with the double deck connected to the TAPE 1 jacks corresponding to that of input selector.
- ⑬ This indicator lights when the tape deck connected to the TAPE 1 jacks corresponding to that of input selector is set to the recording mode.
- ⑭ Lights when the TAPE 2 of INPUT SELECTOR is pressed.
- ⑮ Indicates the volume balance between left and right.
- ⑯ In tuner mode, lights during AUTO tuning.
- ⑰ In tuner mode, lights when a stereo broadcast is tuned in.
- ⑱ In tuner mode, lights when a station is tuned in.
- ⑲ In tuner mode, lights when a station is tuned in by memory selection.

## DISASSEMBLY FOR REPAIR

(Remove the metallic cabinet before performing the following operations.)

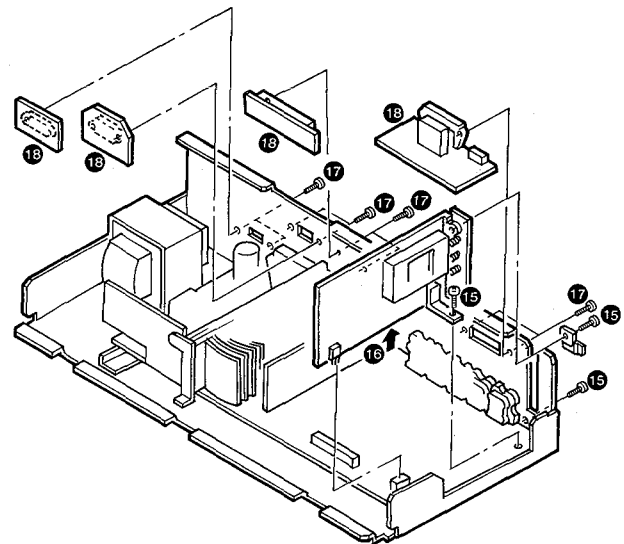
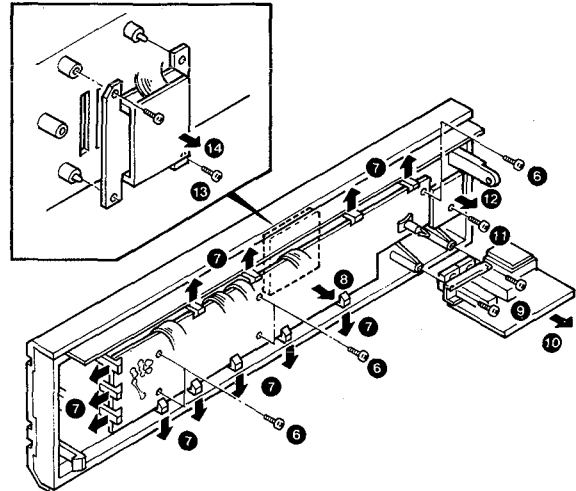
1. Remove the 3 screws fixing the front panel to the sub panel (1).
2. Disengage the Tuner Unit (X05-3320-10) (D/4) from the unit holder (2).
3. Disengage the 2 claws of the sub panel from the chassis (3).
4. Remove the front panel together with the sub panel, in the direction of the arrow (4).
5. When installing the front panel, pay attention to the mounting position related to the chassis (5).



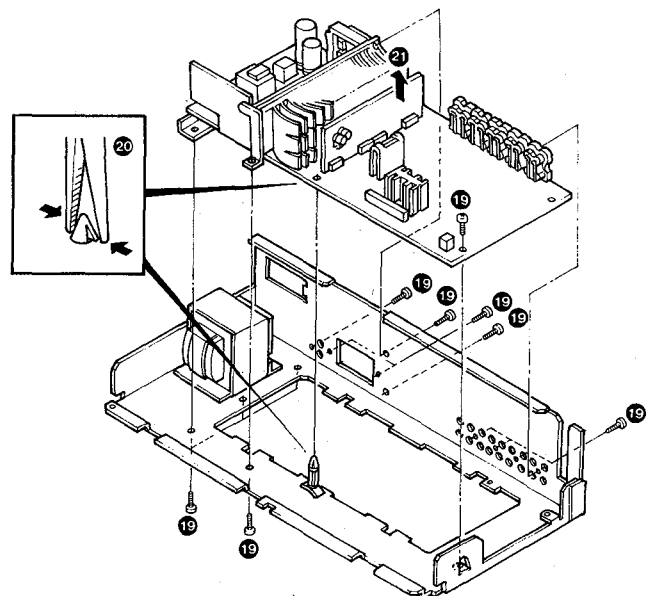


## DISASSEMBLY FOR REPAIR

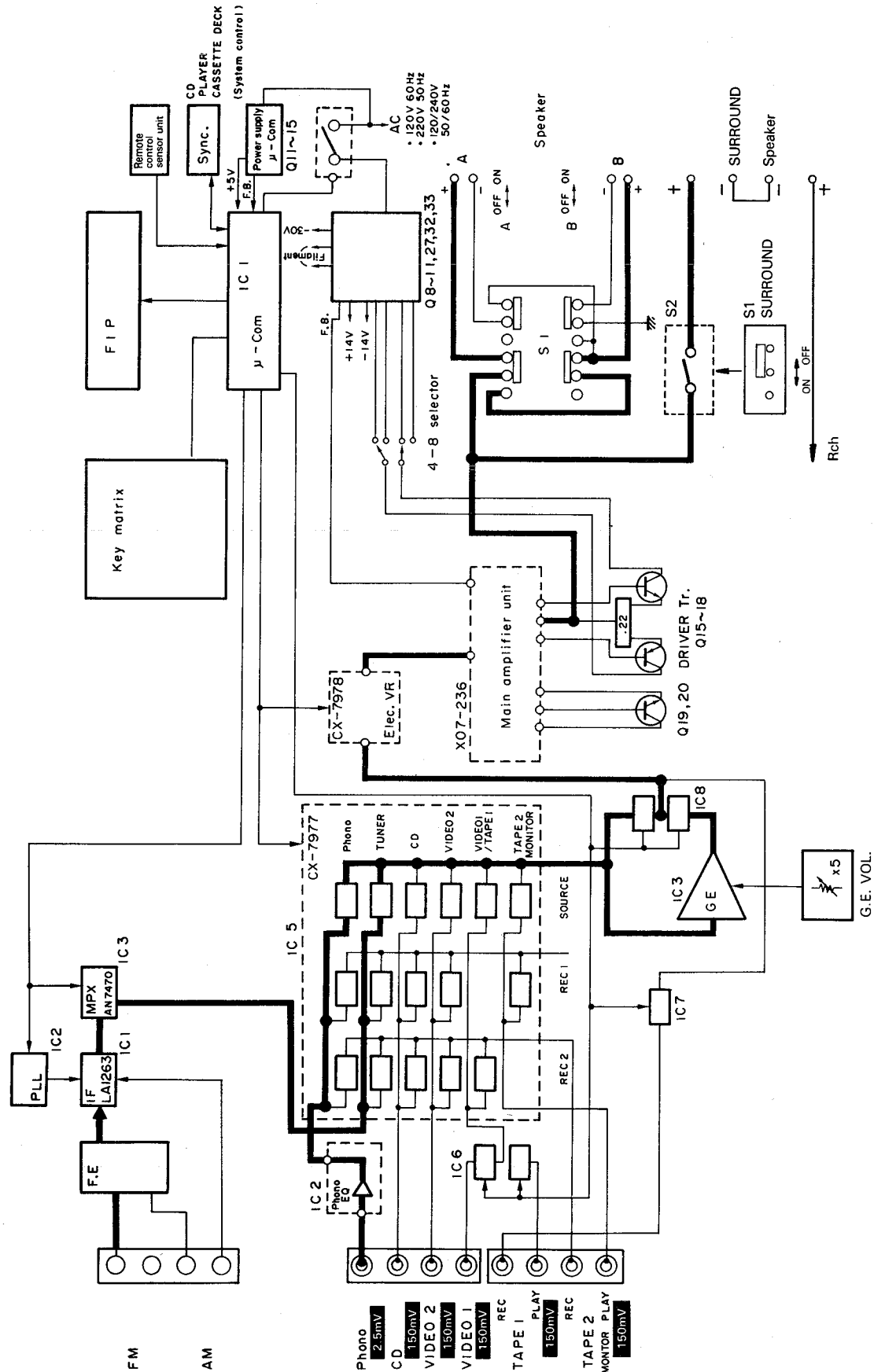
6. Remove the 5 screws fixing the Audio Unit (X09-2390-10) (B/5) to the sub panel (6).
  7. Disengage the 12 claws of the sub panel which retain the Audio Unit (X09-) (B/5) (7).
  8. Remove the Audio Unit (X09-) (B/5) in the direction of the arrow (8).
  9. Remove the 2 screws fixing the multiple push switch (S1) to the sub panel (9).
  10. Remove the Audio Unit (X09-) (D/5) in the direction of the arrow (10).
  11. Remove the screw fixing the Audio Unit (X09-) (C/5) to the sub panel (11).
  12. Remove the Audio Unit (X09-) (C/5) in the direction of the arrow (12).
  13. Remove the 2 screws fixing the Graphic Equalizer to the sub panel (13).
  14. Remove the Graphic Equalizer in the direction of the arrow (14).
  15. Remove the 2 screws fixing the screw terminal board (E1), and remove the screw fixing the mounting hardware to the Audio Unit (X09-) (A/5) (15).
  16. Remove the Tuner Unit (X05-) (A/4) in the direction of the arrow (16).
  17. Remove the 2 screws fixing the Impedance Selector Switch, and remove the 2 screws fixing the Power Type Selector Switch, and remove the 2 screws fixing the channel space switch and remove the 2 screws fixing the Surround Switch. (17).
- Note:** Power Type Selector Switch is equipped with the U, UE and M types.
18. Remove the Impedance Selector Switch, Power Type Selector Switch channel space switch and Surround switch (18).



19. Remove the 14 screws fixing the Audio Unit (X09-) (A/5) (19).
20. Disengage the Audio Unit (X09-) (A/5) from the unit holder (20).
21. Remove the Audio Unit (X09-) (A/5) in the direction of the arrow (21).



## BLOCK & LEVEL DIAGRAM



## CIRCUIT DESCRIPTION

### DESCRIPTION OF COMPONENTS

#### Tuner unit (X05-3320-10)

Components	Use/Function	Operation/Condition/Interchangeability
Q1	FM IF amplifier	
Q2	Buffer	
Q3, 4	PLL L.P.F.	
Q5, 6	FM + B control	
Q7, 8	AM + B control	
Q11		
Q12, 13, 16	Relay driver	
Q14	− 30 V constant voltage	
Q15	+ 5.6 V constant voltage	
IC1	FM IF detector	
IC2	PLL	
IC3	FM MPX	
D1	AM variable capacitor	
D2, 3	Static electricity protection	
D4	+ 5 V constant voltage	
D5	SD/Tune	
D6, 7	Forced to mono out of band range	
D8	Forced to mono	
D9	Beacon	
D10	AM VCO killer	
D11		
D12	+ 5.6 V constant voltage	
D13	− 30 V constant voltage	
D14		
D15, 16	Mute control	

#### Audio unit (X09-2390-10)

Components	Use/Function	Operation/Condition/Interchangeability
Q1, 2	Control of IC6 and IC7	
Q3~5	Selector output muting	
Q6, 7	Control of IC8	
Q8~10	Positive regulated voltage	
Q11, 27, 32, 33	Negative regulated voltage	
Q12~14	Amplifier input muting	
Q15~18	Power transistors of main amplifier	
Q19, 20	Main amplifier temperature compensation	
Q22	Microprocessor resetting	
Q23, 24	FL tuning ST lighting	
Q25, 26	FL buffer	
Q28	Graphic equalizer LED ON/OFF	

## CIRCUIT DESCRIPTION

Components	Use/Function	Operation/Condition/Interchangeability
Q29	U/UE type channel space switching	
Q30 ~ 32	Tuner output muting	
IC1	Microprocessor	
IC2	Phono equalizer	
IC3	Graphic equalizer buffer	
IC4	Preamplifier of main amplifier	
IC5	Input switching	
IC6	TAPE 1/VIDEO switching	
IC7	TAPE 1 REC OUT ON/OFF	
IC8	Graphic equalizer ON/OFF	
IC9	Electronic volume controller	

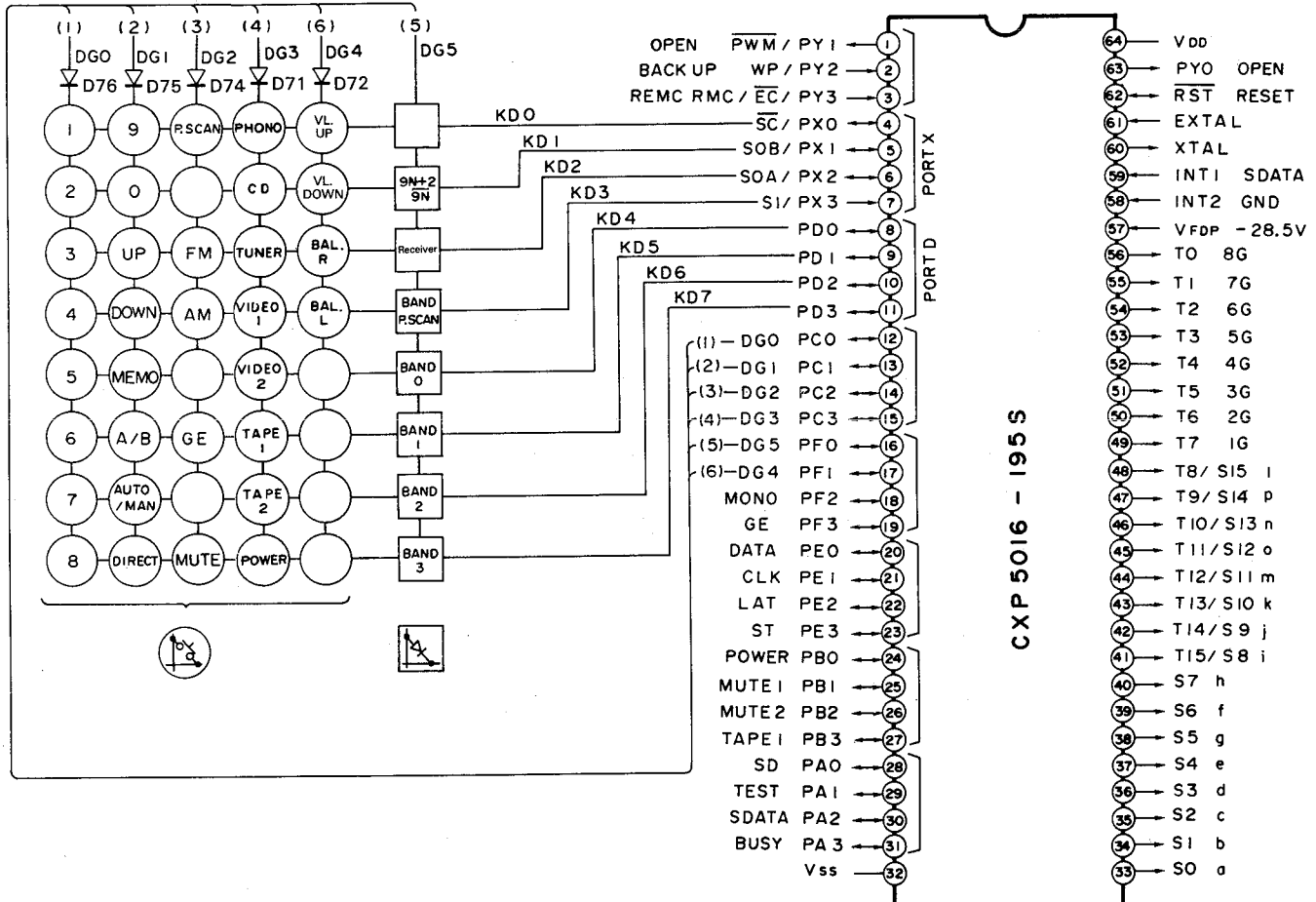
### Power amplifier unit (X07-2360-11)

Components	Use/Function	Operation/Condition/Interchangeability
Q1 ~ 4	Differential amp	First stage.
Q5 ~ 8	Differential amp	Class A amplifier.
Q9, 10	Regulated power supply	Current Miller.
Q11 ~ 14	Predriver	Darlington.
Q15, 16	Protection	Current detection.
Q17	Protection	Driver.
Q18	Muting control	Switching ON/OFF of positive power supply for the first stage.
Q19	Ripple filter	

## CIRCUIT DESCRIPTION

IC1: CXP5016-195S (X09-2390-10)  
MICROPROCESSOR IC

### Key matrix connection



### Diode Switch Function

Version selection and function setting switch for each model (K and E types).

Model for designated area	Setting switch				BAND	Receiving frequency range	Channel spacing	Reference frequency	Intermediate frequency
	Band 3	Band 2	Band 1	Band 0					
K	1	0	0	0	FM	87.5 ~ 108 MHz	100 kHz	50 kHz	10.7 MHz
					AM	530 ~ 1610 kHz	10 kHz	10 kHz	450 kHz
E	1	1	0	0	FM	87.5 ~ 108 MHz	50 kHz	50 kHz	10.7 MHz
					AM	531 ~ 1602 kHz	9 kHz	9 kHz	450 kHz

Setting switch for K and E type models

- Band 3 H: Overseas model
- Band 2 H: FM channel spacing 50 kHz, AM channel spacing 9 kHz  
L: FM channel spacing 100 kHz, AM channel spacing 10 kHz

- Band 1 L: With auto tuning function
- Band 0 L: Display (FM, AM)

## CIRCUIT DESCRIPTION

### Diode switch function and power ON initializing function

#### • Diode switch function

9N + 2/9N select in LW mode

Preamp/receiver select

Band preset scan ON/OFF select

Version selection and function setting switch

#### • Power-On Initialization

When the AC power supply is turned on while the TUNER key (or MEMORY key) is held depressed, the whole content of the backed-up memory is cleared (returning to the First mode).

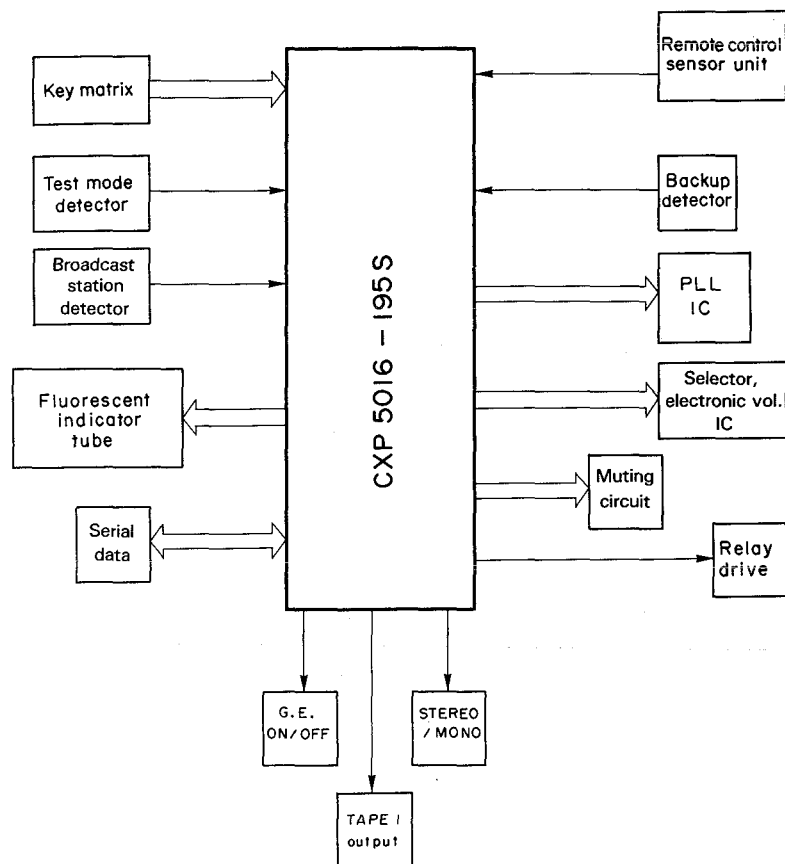
- Selector: TUNER
- Electronic volume control: -50 dB
- Balance: Center
- Muting: OFF
- TAPE 2 MONITOR: OFF

### Terminal function

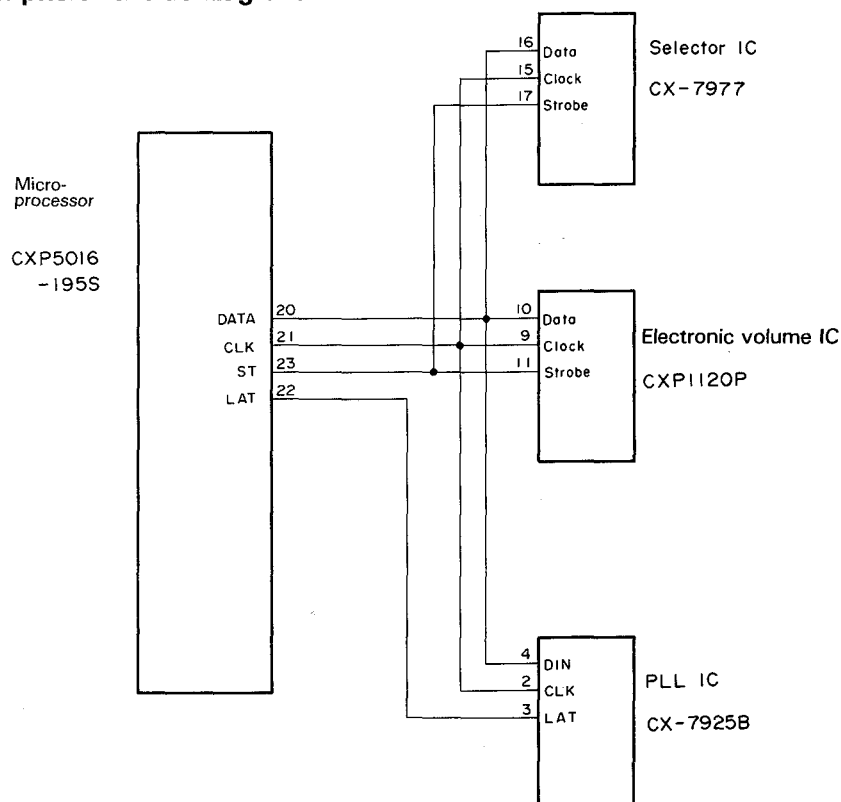
Pin No.	I/O	Name	Function
1	O		Permanently H. Set to Open in actual operations.
2	I	BACK UP	Normally H is input. When L is input, the microprocessor stops oscillation and enters the backup mode. The backup mode is released when the input returns from L to H.
3	I	REMC	Remote control signal input. L active.
4 ~ 11	I	KD0 ~ KD7	Key return signal inputs. H active.
12 ~ 15 17	O	DG0 ~ DG3 DG4	Key digit outputs. Normally H output. Key scanning occurs when a key is pressed on.
16	O	DG5	Digit output for diode switch function. H output when AC power supply is turned on.
18	O	MONO	Forced mono output pin. When the selector is set to TUNER, and FM/Stereo is selected, outputs a "L" signal. Outputs a "H" signal in all other modes.
19	O	GE	Graphic equalizer ON/OFF output. "H" when the graphic equalizer is ON.
20	O	DATA	Serial data output from controlling CX-7977 (selector IC), CX-7978 (electronic volume control) and CX-7925B (PLL IC). Latched at the rise of CLK.
21	O	CLK	Shift clock output for transmitting data to CX-7977, CX-7978 and CX-7925B. Data is latched at the rise of CLK.
22	O	LAT	Data output latch for the CX-7925B. Latched at the rising edge.
23	O	ST	Data latch output for CX7977 and CX7978. Data is latched at the rise.
24	O	POWER	Relay ON/OFF port. H for relay ON.
25	O	MUTE 1	Line output muting terminal. L for muting.
26	O	MUTE 2	TAPE 2 REC output muting terminal. L for muting.
27	O	TAPE 1	Selector TAPE 1 terminal. H when TAPE 1 is selected.
28	I	SD	Active "H" when a broadcast station is present.
29	I	TEST	Test mode setting terminal. Test mode occurs when AC power supply is turned on with L.
30	O	SDATA	Serial data output.
31	I/O	BUSY	Serial BUSY terminal.
32	—	VSS	GND.
33 ~ 48	O	a ~ p	FL drive segment terminals.
49 ~ 56	O	1G ~ 8G	FL drive digit terminals. 244 $\mu$ × 8 digit = Sync.
58	I		Not used. To be short-circuited with Vss or Vdd.
59	I	SDATA	Serial data input. In use, short-circuit with pin 30.
63	O		Permanently H. Set to Open in actual operations.
64	—	VDD	+5V.

## CIRCUIT DESCRIPTION

Microprocessor IC peripheral block diagram

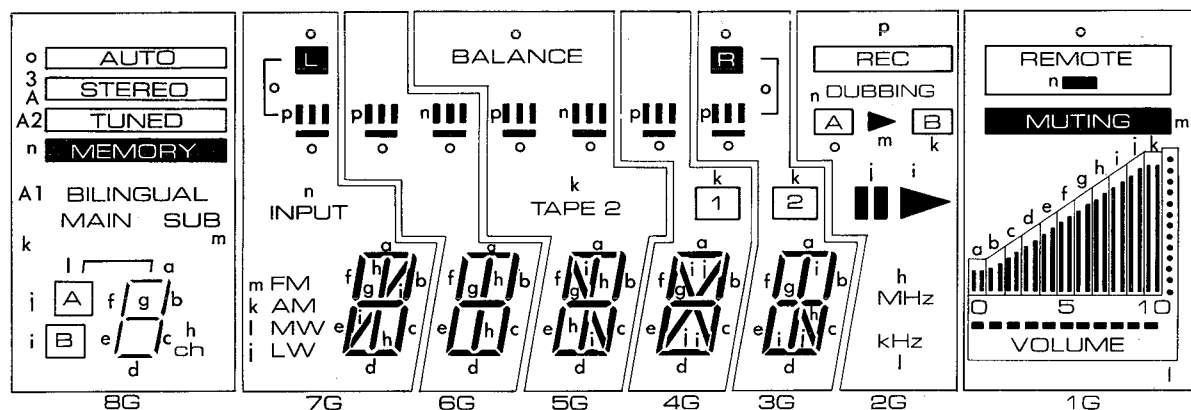


Microprocessor IC peripheral circuit diagram



## CIRCUIT DESCRIPTION

### FL display (FIP8BMW24)



### Terminal connection

Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Electrode	F	F	NP	8G	P(A1)	P(A2)	P(A3)	8G	P(a)	P(b)	7G	P(l)	6G	P(p)	5G	P(n)	P(o)	P(m)
Terminal No.	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
Electrode	P(k)	5G	4G	P(j)	P(l)	3G	P(i)	2G	P(h)	P(f)	P(g)	2G	P(e)	1G	P(d)	P(c)	P(b)	1G
Terminal No.	37	38	39															
Electrode	P(a)	F	F															

Notes F: Filament NP: No Pin G: Grid P: Anode

### Test Functions

When the Acc power supply is turned on with the TEST pin (pin 29) short-circuited with the GND, the unit is switched on in the Test mode. In this mode, all FL display tubes are lit. In test mode, the test frequency is automatically stored in memory. Pressing the VOLUME UP/DOWN keys changes the sound level

in discontinuous steps between  $-78\text{ dB} \leftrightarrow -26\text{ dB} \leftrightarrow 0\text{ dB}$ , and pressing the BALANCE L/R keys changes the balance discontinuously between  $L \leftrightarrow \text{CENTER} \leftrightarrow R$ . The band preset scan is automatically set to the effective (valid) mode, and is convenient for recalling the test frequency.



# KR-A57R KR-A57R

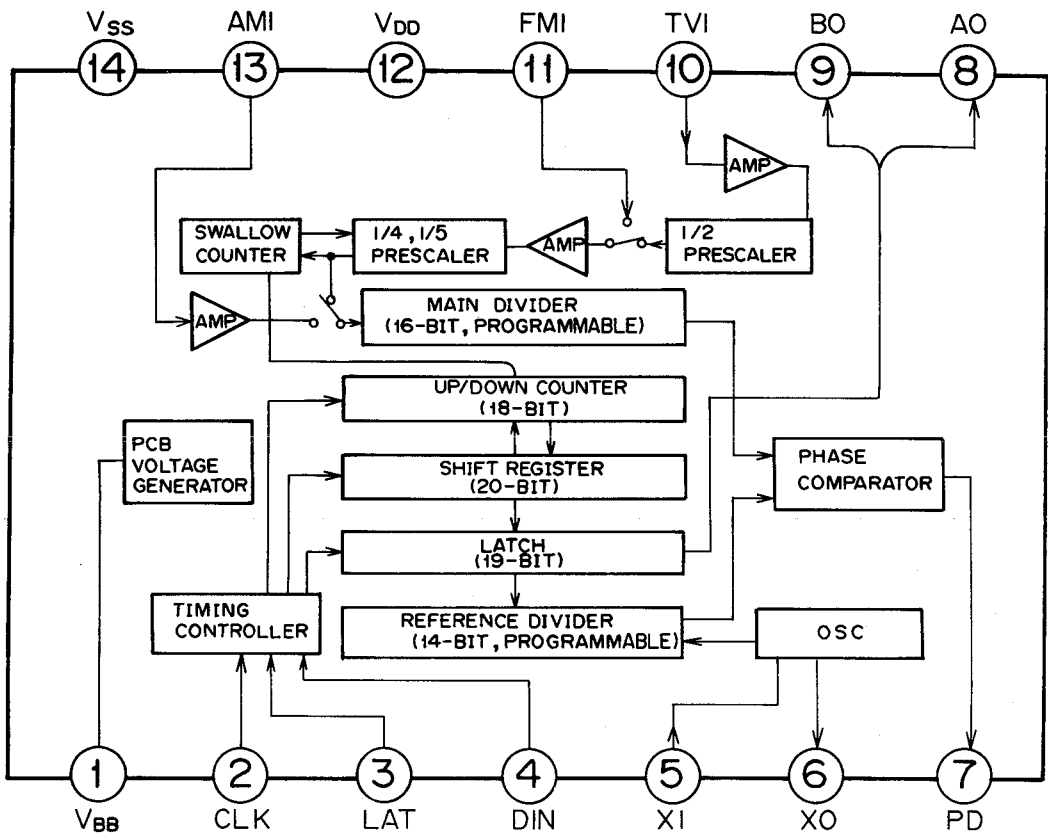
## CIRCUIT DESCRIPTION

Operation Transition Chart

Key Pressed Current Mode	POWER	PHONO CD VIDEO 1 VIDEO 2 TAPE 1	TUNER	TAPE 2	VOLUME UP/DOWN	BALANCE L/R	GRAPHIC EQUALIZER	MUTING	10 KEY	FM	AM	FREQUENCY UP/DOWN	PRESET SCAN	A/B SELECTION	AUTO/ MANUAL	MEMORY	DIRECT
<b>Immediately after power on (SELECTOR: TUNER)</b>	Power turned OFF, FL turned OFF.	Switched to corresponding input.	No change.	TAPE 2 monitoring. No change in TAPE 2 REC OUT.	Volume changed up or down, with dB indicated.	Balance moved left or right, with BALANCE displayed.	Turns OFF when the graphic equalizer is ON, and turns ON when it is OFF.	-20 dB muting, with MUTING indicator flashing.	Recalls the preset memory.	Switches the receiving band to FM.	Switches the receiving band to AM.	Moves the receiving frequency upward/downward.	Activates the preset scan.	Alternates the preset function between A and B.	Alternates the tuning mode between AUTO and MANUAL.	Enables the preset memory, and lights the MEMORY indicator.	Enables direct input of the frequency.
<b>SELECTOR position: Other than TUNER</b>	↑	↑	Switched to TUNER.	↑	↑	↑	↑	↑	(Switches the selector to TUNER.)	(Switches the selector to TUNER.)	(Switches the selector to TUNER.)	No change.	←	←	←	←	←
<b>TAPE 2 monitoring</b>	↑	TAPE 2 monitoring unchanged. TAPE 2 REC OUT switched.	←	TAPE 2 monitoring canceled, and switched to current selector source.	↑	↑	↑	↑	Switches the REC OUT source of TAPE 2 with TAPE 2 monitor left as it is.	←	←	Moves the frequency upward/downward when the selector is set to TUNER.	Activates the preset scan when selector is set to TUNER.	Alternates preset function between A and B when selector is set to TUNER.	Alternates tuning system between AUTO and MANUAL when selector is set to TUNER.	Enables the preset memory operation when selector is set to TUNER.	Enables direct input of the frequency when selector is set to TUNER.
<b>During frequency moving up/down</b>	↑	Switched to corresponding input.	No change.	TAPE 2 monitoring. No change in TAPE 2 REC OUT.	Volume changed up or down, but dB not indicated.	↑	↑	↑	Recalls the preset memory.	No change when the same band as the current one is selected. If the different band is selected, receiving band is switched to FM.	No change when the same band as the current one is selected. If the different band is selected, receiving band is switched to AM.	Frequency is moved up or down according to the button pressed.	Activates the preset scan.	Alternates the preset function between A and B.	Alternates the tuning mode between AUTO and MANUAL.	No change.	←
<b>During preset scan</b>	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	Moves the receiving frequency upward/downward.	Preset scan operation is released.	↑	↑	↑	↑
<b>During preset memory (MEMORY indicator is lit)</b>	↑	↑	↑	↑	Volume changed up or down, with dB indicated.	↑	↑	↑	The received frequency is stored in the preset memory corresponding the numeric key pressed.	↑	↑	↑	Activates the preset scan.	↑	↑	↑	Enables direct input of the frequency.
<b>During direct inputting the frequency</b>	↑	↑	↑	↑	Volume changed up or down, but dB not indicated.	↑	↑	↑	The numeric key pressed is directly input.	↑	↑	↑	↑	No change.	↑	↑	Direct input operation is released.
<b>During ERROR indicator flashing after frequency is directly input</b>	↑	↑	↑	↑	↑	↑	↑	↑	Recalls the preset memory.	↑	↑	↑	↑	↑	↑	↑	Enables direct input of the frequency.

CIRCUIT DESCRIPTION

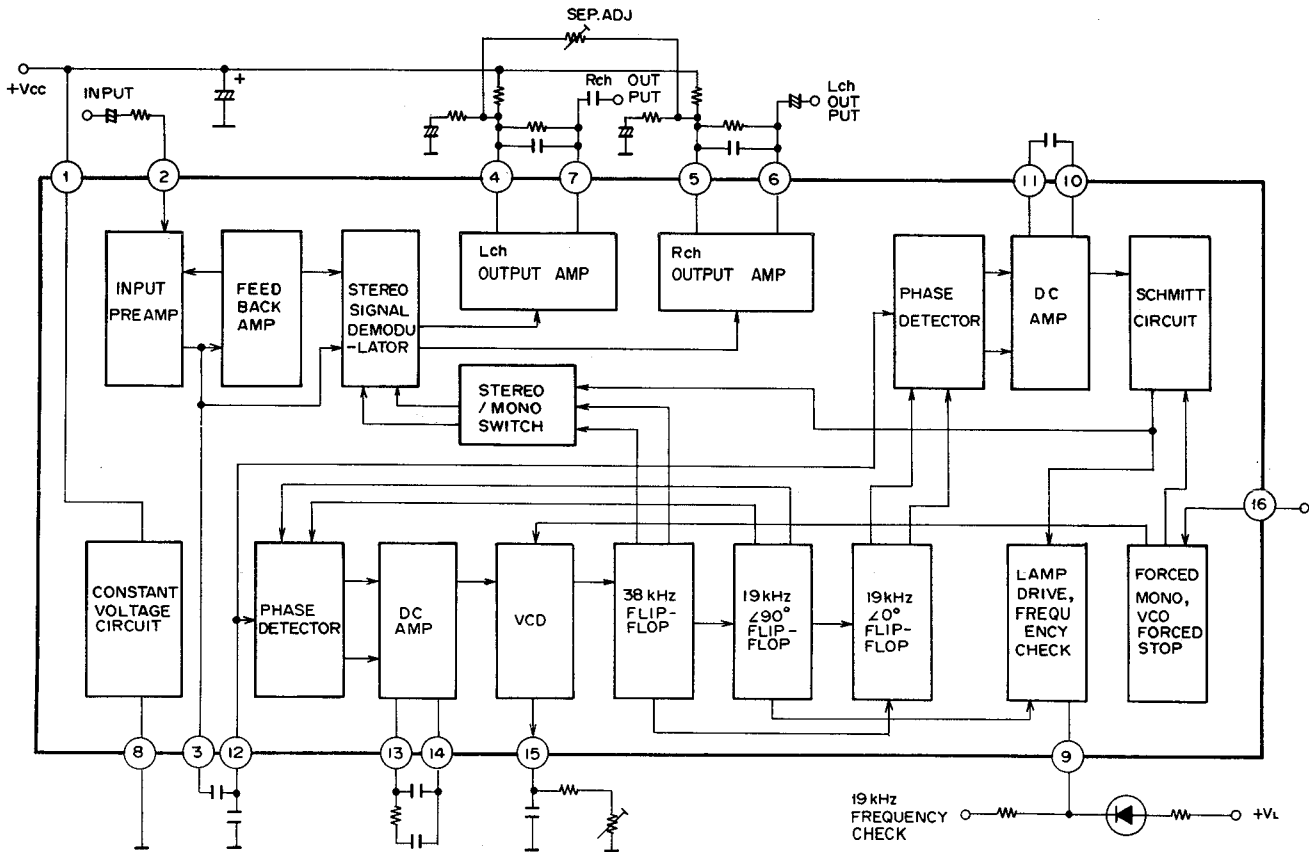
IC2: CX7925B (X05-3320-10) PLL  
Block diagram and terminal configuration diagram



Terminal description

Terminal No.	Symbol	Terminal Description
1	VBB	PCB terminal (Connect a 0.01 $\mu$ F capacitor between the GND).
2	CLK	Input terminal for the clock used for 20-bit serial data input (Shifted at the rise).
3	LAT	Input terminal for the shift register input data latch signal (shifted at the rise) and, at the same time, for the Up/Down clock (status changed at the rise).
4	DIN	Data input terminal, also the Up/Down mode switching terminal (Up mode with "H" level, Down mode with "L" level).
5	XI	Connection terminals for the reference signal generator X'tal oscillator. (Max. 13 MHz, standard 4.0 MHz)
6	XO	
7	PD	Phase comparator output terminal (3-state).
8	AO	External control signal output terminal/Unlock signal output terminal (E/E MOS push-pull).
9	BO	External control signal output terminal/data check terminal (E/E MOS push-pull).
10	TVI	High-frequency signal input terminal (300 MHz or 350 MHz max.). With 1/2 prescaler.
11	FMI	High-frequency signal input terminal (150 MHz or 180 MHz max.).
12	VDD	Power supply (+5V).
13	AMI	High-frequency signal input terminal (40 MHz or 50 MHz max.).
14	Vss	Grounding terminal

IC3: AN7470 (X05-3320-10) FM MPX  
Equivalent block diagram



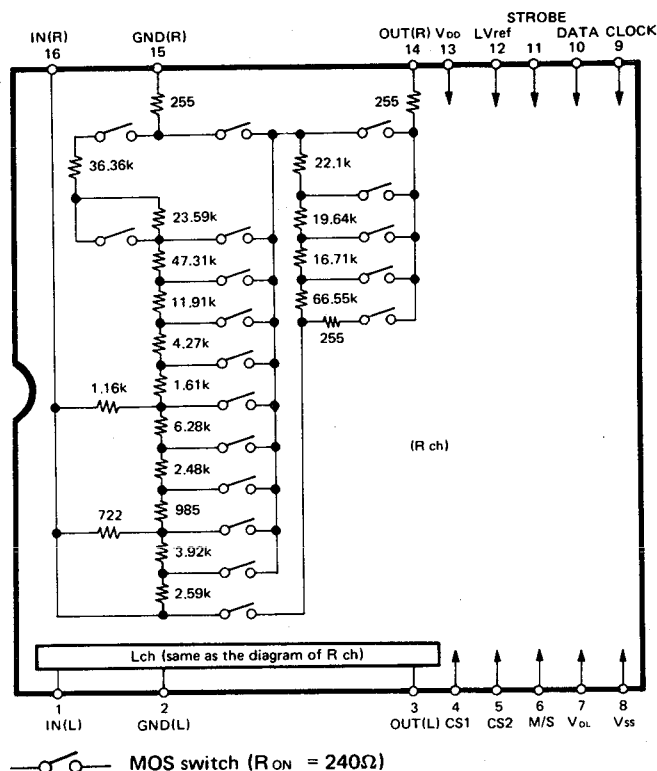
Terminal connection and functions

Terminal No.	Connection/Function
1	Supply voltage (+Vcc)
2	Stereo composite signal, input terminal
3	Input preamp, output terminal
4	L CH output amp, feedback terminal
5	R CH output amp, feedback terminal
6	R CH output amp, output terminal
7	L CH output amp, output terminal
8	Grounding terminal
9	Stereo display lamp drive and 19 kHz frequency check terminal
10	Stereo signal detector circuit, low-pass filter terminal
11	Stereo signal detector circuit, low-pass filter terminal
12	PLL circuit, input terminal
13	PLL circuit, low-pass filter terminal
14	PLL circuit, low-pass filter terminal
15	VCO freerun oscillation frequency adjustment terminal
16	Forced mono/forced VCO oscillation stop terminal

## CIRCUIT DESCRIPTION

### IC9: CXD1120P-1 (X09-2390-10) ELECTRONIC VOLUME CONTROLLER

Equivalent Circuit Diagram



#### Terminal Description

Terminal No.	Symbol	I/O	Description
1	IN (L)	I	Audio signal inputs.
16	IN (R)	I	
2	GND (L)		Reference voltage (0V) for the L and R channel audio signals.
15	GND (R)		
3	OUT (L)	O	Audio signal outputs.
14	OUT (R)	O	
4	CS1	I	Chip select terminals which select this chip when the levels of the serial data bits (9), and (10) agree with those of them; CS1 = bit (9) and CS2 = bit (10), where level "0" = Vss and level "1" = VDL or open.
5	CS2	I	
6	M/S	I	Serial data input mode select terminal. The IC expects 8-bit input when this terminal is held at the Vss level while it expects 11-bit input when the terminal is open or at the VDL level.
7	VDL		Logic power supply (Vss = + 5V).
8	Vss		IC substrate potential (-14V).
9	Clock	I	Serial data read clock terminal which provides 8 or 11 read clock pulses at the rise edge of which 8 or 11 data bits are respectively read.
10	Data	I	8- or 11-bit serial input data.
11	Strobe	I	This pulse latches at its rise edge the serial data read in the analog switch status setting pulse (single e pulse) IC which make appropriate switches.
12	L Vref	I	Sets the input level of the control signals (Clock, Data, and Strobe).
13	VDD		Switch driver power supply (+ 14V).

CIRCUIT DESCRIPTION

Control Data Bit Assignments

8-bit configuration  
(M/S = V<sub>SS</sub>)

8	7	6	5	4	3	2	1
$\bar{R}$	$\bar{L}$	8dB Step Data			2dB Step Data		

11-bit configuration  
(M/S = OPEN or V<sub>DL</sub>)

11	10	9	8	7	6	5	4	3	2	1
1	CS2	CS1	R	L	8dB Step Data			2dB Step Data		

8bit (M/S : "L")

Position	Bit
	8 7
L + R	0 0
R	0 1
L	1 0
No change	1 1

11bit (M/S : "H")

Position	Bit
	8 7
No change	0 0
L	0 1
R	1 0
L + R	1 1

\*

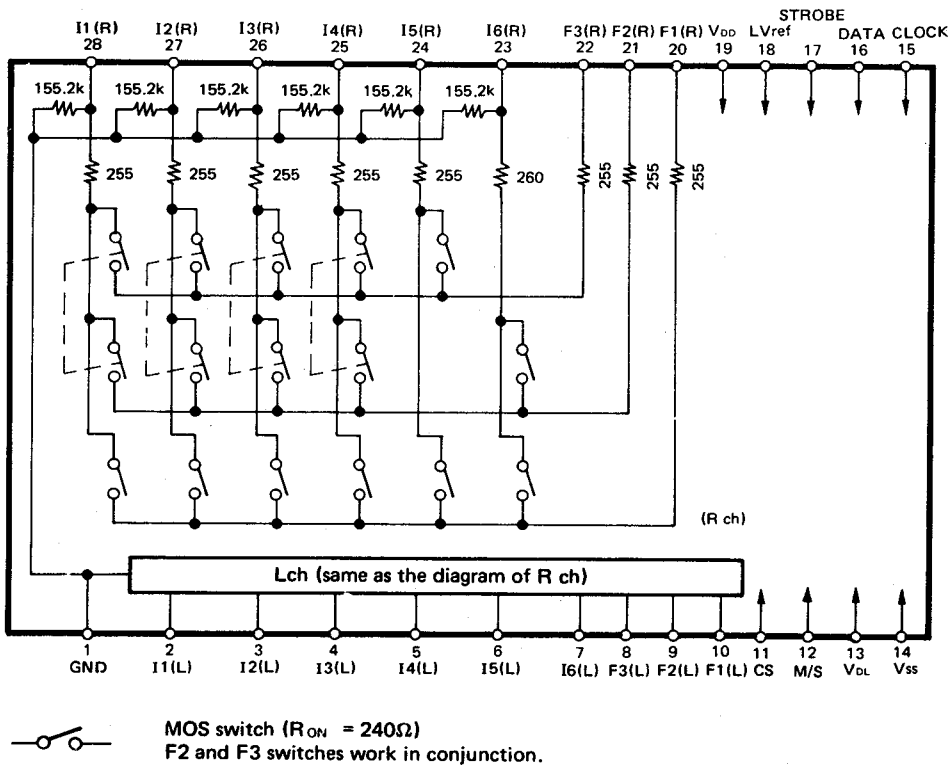
Position	Bit
	2 1
0dB	0 0
2dB	0 1
4dB	1 0
6dB	1 1

\*

Position	Bit
	6 5 4 3
0dB	0 0 0 0
8dB	0 0 0 1
16dB	0 0 1 0
24dB	0 0 1 1
32dB	0 1 0 0
40dB	0 1 0 1
48dB	0 1 1 0
56dB	0 1 1 1
64dB	1 0 0 0
72dB	1 0 0 1
∞	1 0 1 0

\* The attenuation is the sum of the 8-dB and 2-dB increments.

IC5: CX7977 (X09-2390-10) SELECTOR  
Equivalent Circuit Diagram

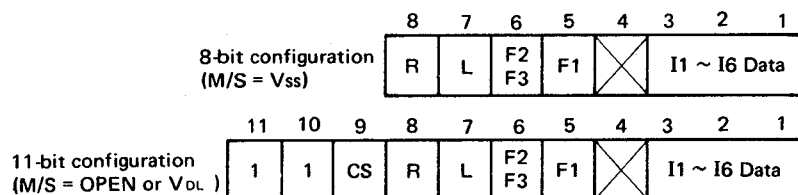


## CIRCUIT DESCRIPTION

## Terminal Description

Terminal No.	Symbol	I/O	Description
1	GND		Audio signal reference potential (0V).
2~7	I1(L)~I6(L)	I	L-channel audio signal input terminals (6 lines).
8~10	F3(L)~F1(L)	O	L-channel audio signal output terminals (3 lines).
11	CS	I	Chip select terminal selects this IC when the level of the serial data bit (9) agrees with that of this terminal; i.e., CS = bit (9), where level "0" = $V_{SS}$ and level "1" = $V_{DL}$ or open.
12	M/S	I	Serial data input mode select terminal. The IC expects 8-bit input when this terminal is held at the $V_{SS}$ level while it expects 11-bit input when the terminal is open or at the $V_{DL}$ level.
13	$V_{DL}$		Logic power supply ( $V_{SS} = +5V$ ).
14	$V_{SS}$		IC substrate potential ( $-14V$ ).
15	Clock	I	Serial data read clock terminal which provides 8 or 11 read clock pulses at the rise edge of which 8 or 11 data bits are respectively read.
16	Data	I	8- or 11-bit serial input data.
17	Strobe	I	This pulse latches at its rise edge the serial data read in the analog switch status setting (single pulse) IC which make appropriate switches.
18	L Vref	I	Sets the input level of the control signals (Clock, Data, and Strobe).
19	$V_{DD}$		Switch driver power supply (+14V).
20~22	F1(R)~F3(R)	O	R-channel audio signal output terminals (3 lines).
23~28	I6(R)~I1(R)	I	R-channel audio signal input terminals (6 lines).

## Control Data Bit Assignments



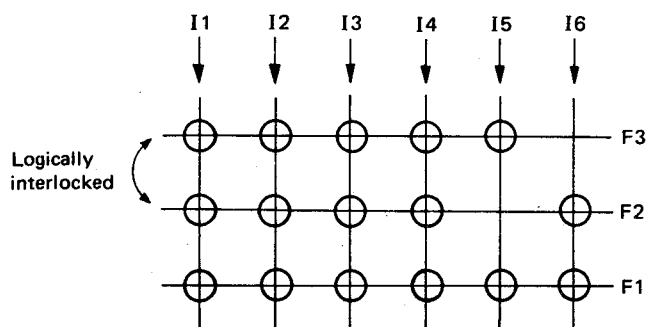
8bit (M/S : "L")

Position	Bit	
	8	7
No change	0	0
No change	0	1
No change	1	0
L + R	1	1

11bit (M/S : "H")

Position	Bit	
	8	7
No change	0	0
L	0	1
R	1	0
L + R	1	1

\* The F2 and F3 output controls are interlocked.  
 The I5 input signal is never fed through the F2 line.  
 The I6 input signal is never fed through the F3 line.  
 This is well illustrated by the following conceptual diagram:



Each  $\oplus$  indicates an equivalent switch.

\*

Position	Bit		
	3	2	1
I1	0	0	0
I2	0	0	1
I3	0	1	0
I4	0	1	1
I5	1	0	0
I6	1	0	1

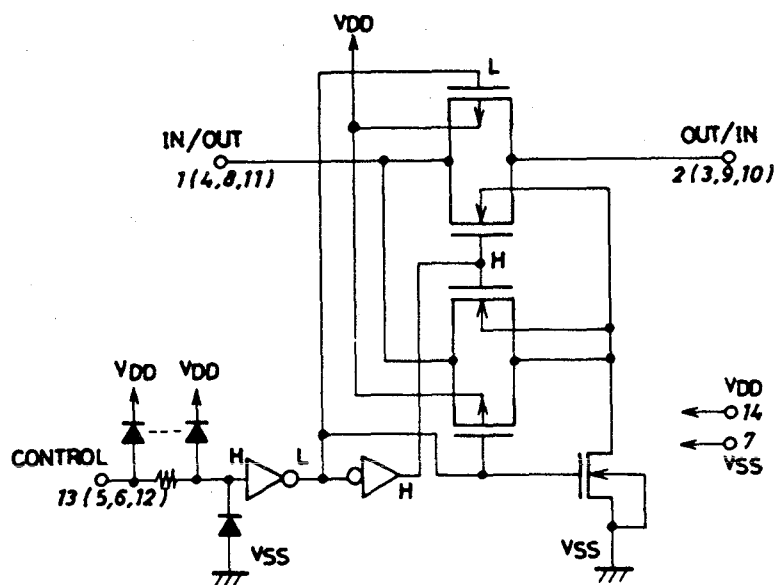
\*

Position	Bit	
	6	5
No change	0	0
Output F1	0	1
Output F1,F2	1	0
Output F1,F2,F3	1	1

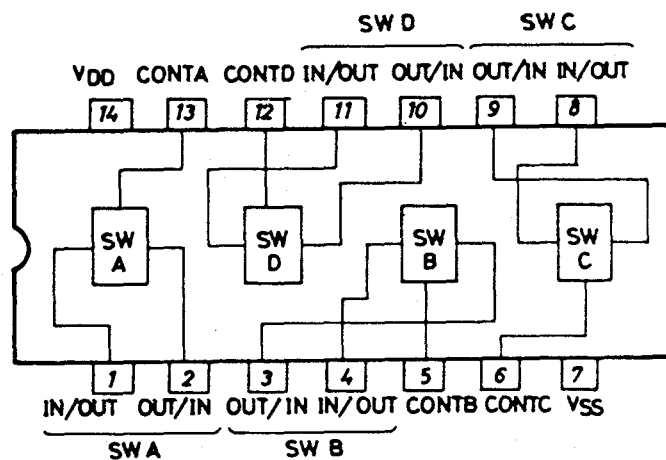
## CIRCUIT DESCRIPTION

IC6 ~ 8: LC4966 (X09-2390-10) SELECTOR

Equivalent Circuit



Terminal Description and Equivalent Circuit Diagram



## ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
<b>FM SECTION</b>		<b>SELECTOR: FM</b>					
1	DETECTOR	(A) 98.0MHz 1kHz, ±75kHz dev 60dBμ(Ant input)	Connect a DC voltmeter between TP5 and TP6.	AUTO or MONO 98.0MHz	L5 (X05-)	0V	(a)
2	VCO	(A) 98.0MHz 0 dev 100dBμ(Ant input)	Connect a frequency counter between TP8 and GND.	AUTO 98.0MHz	VR3 (X05-)	76.00kHz	(b)
3	SEPARATION (E Type)	(C) 98.0MHz Stereo signal 60dBμ(Ant input)	(B)	AUTO 98.0MHz	VR4 (X05-)	Minimum crosstalk.	
4	TUNING LEVEL	(A) 98.0MHz 0 dev 18dBμ(Ant input) 3000 14dBμ(Ant input) 750	(B)	AUTO or MONO 98.0MHz	VR2 (X05-)	Adjust VR2 and stop at the point where FL1(TUNED) goes on.	
<b>AM SECTION</b>		<b>Keep the AM loop antenna installed. SELECTOR: AM</b>					
(1)	BAND EDGE (Low)	—	Connect a DC voltmeter between TP3(GND) and TP2.	—	L2 (X05-)	1.5V	(c)
(2)	BAND EDGE (High)	—	Connect a DC voltmeter between TP3(GND) and TP2.	—	TC2 (X05-)	8.0V	(c)
Repeat alignments (1) and (2) several times.							
(3)	RF ALIGNMENT (1)	(D) 600kHz 20dBμ(Ant input)	(B)	—	L1 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
(4)	RF ALIGNMENT (2)	(D) 1400kHz 20dBμ(Ant input)	(B)	—	TC1 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
Repeat alignments (3) and (4) several times.							
(5)	IF TRANSFORMER	(D) 1000kHz 20dBμ(Ant input)	(B)	—	L6 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
(6)	TUNING LEVEL	(D) 1000kHz 36dBμ(Ant input)	(B)	—	VR1 (X05-)	Adjust VR1 and stop at the point where FL1(TUNED) goes on.	
<b>AUDIO SECTION</b>							
[1]	IDLE CURRENT	—	(E) Connect a DC voltmeter across CP1(L) CP2(R)	Volume: 0	VR1(L) VR2(R) (X07-)	13mV	(d)

## REGLAGES

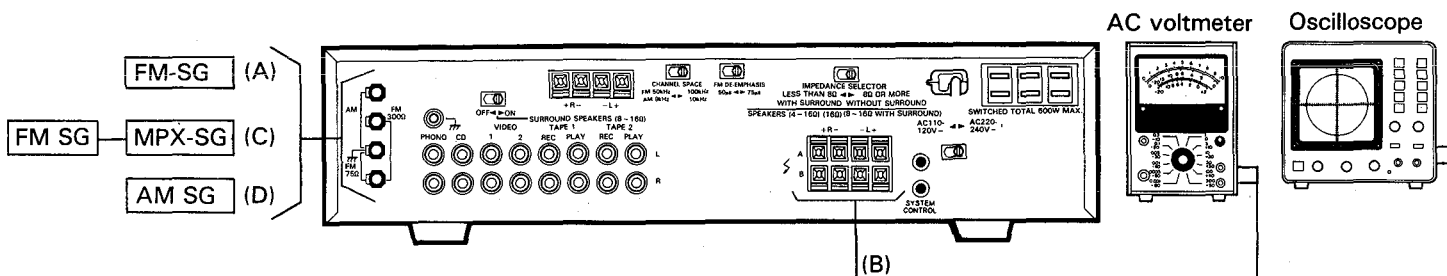
N°	ITEM	REGLAGE DE L'ENTREE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER	POINT DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION MF		SELECTEUR : FM					
1	DETECTEUR	(A) 98,0MHz 1kHz.±75kHz dév 60dBμ(Entrée ANT)	Relier un voltmètre CC entre les TP5 et TP6.	AUTO ou MONO 98,0MHz	L5 (X05-)	0V	(a)
2	OSCILLATEUR CONTROLE PAR LA TENSION	(A) 98,0MHz 0 dév 100dBμ(Entrée ANT)	Relier un compteur de fréquence entre les TP8 et GND.	AUTO 98,0MHz	VR3 (X05-)	76,00kHz	(b)
3	SEPARATION (E type)	(C) 98,0MHz Signal stéréo 60dBμ(Entrée ANT)	(B)	AUTO 98,0MHz	VR4 (X05-)	Diaphonie minimale.	
4	NIVEAU D' ACCORDER	(A) 98,0MHz 0 dév 18dBμ(Entrée ANT) 300Ω 14dBμ(Entrée ANT) 75Ω	—	AUTO ou MONO 98,0MHz	VR2 (X05-)	Ajuster VR2 et arrêter le mouvement de VR2 au moment où le FL1(TUNED)s'allume.	
SECTION MA		Laisser l'antenne bouche MA installée. SELECTEUR: AM					
(1)	BORD DE BANDE (Bas)	—	Relier un voltmètre entre les TP3(GND) et TP2.	—	L2 (X05-)	1,5V	(c)
(2)	BORD DE BANDE (Haut)	—	Relier un voltmètre entre les TP3(GND) et TP2.	—	TC2 (X05-)	8,0V	(c)
Répéter les points (1) et (2) plusieurs fois.							
(3)	ALIGNEMENT H.T. (1)	(D) 600kHz 20dBμ(Entrée ANT)	(B)	—	L1 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(4)	ALIGNEMENT H.T. (2)	(D) 1400kHz 20dBμ(Entrée ANT)	(B)	—	TC1 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
Répéter les points (3) et (4) plusieurs fois.							
(5)	TRANSFORMATEUR F.I.	(D) 1000kHz 20dBμ(Entrée ANT)	(B)	—	L6 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(6)	NIVEAU D' ACCORDER	(A) 1000kHz 36dBμ(Entrée ANT)	—	—	VR1 (X05-)	Ajuster VR1 et arrêter le mouvement de VR1 au moment où le FL1(TUNED)s'allume.	
SECTION AUDIO							
[1]	COURANA DE POLARISATION	—	(E) Connecter un voltmètre CC sur CP1(L) CP2(R)	Volume: 0	VR1(G) VR2(D) (X07-)	13mV	(d)



## ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	TUNER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
UKW-EMPFANGSABTEILUNG WÄHLER: FM							
1	DETEKTOR	(A) 98,0MHz 1kHz.±75kHz Hub 60dBμ(ANT-Eingang)	Einen Gleichspannungs- messer zwischen TP5 und TP6 anschließen.	AUTO oder MONO 98,0MHz	L5 (X05-)	0V	(a)
2	SPANNUNGS- GEREGELTER OSZILLATOR	(A) 98,0MHz 0 Hub 100dBμ(ANT-Eingang)	Einen Frequenzzähler zwischen TP8 und GND anschließen.	AUTO 98,0MHz	VR3 (X05-)	76,00kHz	(b)
3	STEREO KANAL TRENNUNG (E Type)	(C) 98,0MHz Stereo Signal 60dBμ(ANT-Eingang)	(B)	AUTO 98,0MHz	VR4 (X05-)	Minimal Klirrfaktor.	
4	ABSTIMM PEGEL	(A) 98,0MHz 0 Hub 18dBμ(ANT-Eingang) 300Ω 14dBμ(ANT-Eingang) 75Ω	—	AUTO oder MONO 98,0MHz	VR2 (X05-)	Den Pegel wiederstand aufdrehen, und dem VR2 Halt geben wobei den FL1(TUNED) anzeiger leuchtet wird.	
MW-EMPFANGSABTEILUNG Die MW-Rahmenantenne angebracht lassen. WÄHLER: AM							
(1)	BANDKANTE (Niedrig)	—	Einen Gleichspannungs- messer zwischen TP3(GND) und TP2 anschließen.	—	L2 (X05-)	1,5V	(c)
(2)	BANDKANTE (Hoch)	—	Einen Gleichspannungs- messer zwischen TP3(GND) und TP2 anschließen.	—	TC2 (X05-)	8,0V	(c)
Abstimmungen (1) und (2) mehrere Male wiederholen.							
(3)	HF-ABGLEICH (1)	(D) 600kHz 20dBμ(ANT-Eingang)	(B)	—	L1 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(4)	HF-ABGLEICH (2)	(D) 1400kHz 20dBμ(ANT-Eingang)	(B)	—	TC1 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
Abstimmungen (3) und (4) mehrere Male wiederholen.							
(5)	ZF-ÜBERTRAGER	(D) 1000kHz 20dBμ(ANT-Eingang)	(B)	—	L6 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(6)	ABSTIMM PEGEL	(A) 1000kHz 36dBμ(ANT-Eingang)	—	—	VR1 (X05-)	Den Pegel wiederstand aufdrehen, und dem VR1 Halt geben wobei den FL1(TUNED) anzeiger leuchtet wird.	
AUDIO-ABTEILUNG							
[1]	LEERLAUFSTROM	—	(E) Einen Gleichspannungs- messer über CP1(L) CP2(R) anschließen.	Volume: 0	VR1(L) VR2(R) (X07-)	13mV	(d)

## ADJUSTMENT/REGLAGES/ABGLEICH



## VOLTAGE TABLES

### X05-33XX-XX

IC1	IC2	IC3	Q1	Q2	Q3	Q4	Q5	Q6																																																																																																										
<table><tr><td>1~3,15</td><td>2.4V</td></tr><tr><td>4,8,17~19</td><td>0V</td></tr><tr><td>5~7</td><td>13.6V</td></tr><tr><td>9,20,21</td><td>4.0V</td></tr><tr><td>10</td><td>3.2V</td></tr><tr><td>11</td><td>1.8V</td></tr><tr><td>12</td><td>1.5V</td></tr><tr><td>13,14</td><td>2.0V</td></tr><tr><td>16</td><td>1.4V</td></tr><tr><td>22</td><td>2.8V</td></tr></table>	1~3,15	2.4V	4,8,17~19	0V	5~7	13.6V	9,20,21	4.0V	10	3.2V	11	1.8V	12	1.5V	13,14	2.0V	16	1.4V	22	2.8V	<table><tr><td>1</td><td>-2.5V</td><td>8</td><td>3.6V</td></tr><tr><td>2</td><td>0V</td><td>9</td><td>0V</td></tr><tr><td>3</td><td>0V</td><td>10</td><td>0.2V</td></tr><tr><td>4</td><td>5.2V</td><td>11</td><td>2.5V</td></tr><tr><td>5</td><td>2.1V</td><td>12</td><td>5.0V</td></tr><tr><td>6</td><td>2.4V</td><td>13</td><td>3.6V</td></tr><tr><td>7</td><td>1.1V</td><td>14</td><td>0V</td></tr></table>	1	-2.5V	8	3.6V	2	0V	9	0V	3	0V	10	0.2V	4	5.2V	11	2.5V	5	2.1V	12	5.0V	6	2.4V	13	3.6V	7	1.1V	14	0V	<table><tr><td>1</td><td>12.0V</td></tr><tr><td>2,10,12~14</td><td>2.6V</td></tr><tr><td>3</td><td>6.2V</td></tr><tr><td>4,5</td><td>9.8V</td></tr><tr><td>6</td><td>5.0V</td></tr><tr><td>7</td><td>5.1V</td></tr><tr><td>8</td><td>0V</td></tr><tr><td>9</td><td>0.7V</td></tr><tr><td>11</td><td>2.5V</td></tr><tr><td>15</td><td>3.3V</td></tr><tr><td>16</td><td>0.3V</td></tr></table>	1	12.0V	2,10,12~14	2.6V	3	6.2V	4,5	9.8V	6	5.0V	7	5.1V	8	0V	9	0.7V	11	2.5V	15	3.3V	16	0.3V	<table><tr><td>E</td><td>2.3V</td></tr><tr><td>C</td><td>10.6V</td></tr><tr><td>B</td><td>-3.6V</td></tr></table>	E	2.3V	C	10.6V	B	-3.6V	<table><tr><td>E</td><td>-2.6V</td></tr><tr><td>C</td><td>13.8V</td></tr><tr><td>B</td><td>-3.2V</td></tr></table>	E	-2.6V	C	13.8V	B	-3.2V	<table><tr><td>E</td><td>0V</td></tr><tr><td>C</td><td>4.6V</td></tr><tr><td>B</td><td>0.6V</td></tr></table>	E	0V	C	4.6V	B	0.6V	<table><tr><td>E</td><td>0.6V</td></tr><tr><td>C</td><td>4.6V</td></tr><tr><td>B</td><td>-1.0V</td></tr></table>	E	0.6V	C	4.6V	B	-1.0V	<table><tr><td>E</td><td>13.9V</td></tr><tr><td>C</td><td>13.8V</td></tr><tr><td>B</td><td>13.2V</td></tr></table>	E	13.9V	C	13.8V	B	13.2V	<table><tr><td>E</td><td>0V</td></tr><tr><td>C</td><td>0V</td></tr><tr><td>B</td><td>0.6V</td></tr></table>	E	0V	C	0V	B	0.6V
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B	0.6V																																																																																																																	
			Q7	Q8	Q11	Q12	Q13	Q14																																																																																																										
			<table><tr><td>E</td><td>0V</td></tr><tr><td>C</td><td>13.9V</td></tr><tr><td>B</td><td>0V</td></tr></table>	E	0V	C	13.9V	B	0V	<table><tr><td>E</td><td>14.0V</td></tr><tr><td>C</td><td>0V</td></tr><tr><td>B</td><td>13.9V</td></tr></table>	E	14.0V	C	0V	B	13.9V	<table><tr><td>E</td><td>6.2V</td></tr><tr><td>C</td><td>0V</td></tr><tr><td>B</td><td>5.4V</td></tr></table>	E	6.2V	C	0V	B	5.4V	<table><tr><td>E</td><td>2.0V</td></tr><tr><td>C</td><td>6.3V</td></tr><tr><td>B</td><td>2.5V</td></tr></table>	E	2.0V	C	6.3V	B	2.5V	<table><tr><td>E</td><td>1.3V</td></tr><tr><td>C</td><td>6.3V</td></tr><tr><td>B</td><td>2.0V</td></tr></table>	E	1.3V	C	6.3V	B	2.0V	<table><tr><td>E</td><td>-30.9V</td></tr><tr><td>C</td><td>-46.6V</td></tr><tr><td>B</td><td>-31.4V</td></tr></table>	E	-30.9V	C	-46.6V	B	-31.4V																																																																						
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C	13.9V																																																																																																																	
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C	0V																																																																																																																	
B	13.9V																																																																																																																	
E	6.2V																																																																																																																	
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B	5.4V																																																																																																																	
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B	2.5V																																																																																																																	
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B	2.0V																																																																																																																	
E	-30.9V																																																																																																																	
C	-46.6V																																																																																																																	
B	-31.4V																																																																																																																	
			Q15																																																																																																															
			<table><tr><td>E</td><td>5.6V</td></tr><tr><td>C</td><td>11.6V</td></tr><tr><td>B</td><td>6.2V</td></tr></table>	E	5.6V	C	11.6V	B	6.2V																																																																																																									
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C	11.6V																																																																																																																	
B	6.2V																																																																																																																	

### X07-236X-XX

Q1,3	Q5	Q7	Q9	Q11	Q12	Q13	Q14	Q15	Q17																																																												
<table><tr><td>E</td><td>0.7V</td></tr><tr><td>C</td><td>-42V</td></tr><tr><td>B</td><td>0.1V</td></tr></table>	E	0.7V	C	-42V	B	0.1V	<table><tr><td>E</td><td>—</td></tr><tr><td>C</td><td>22V</td></tr><tr><td>B</td><td>-42V</td></tr></table>	E	—	C	22V	B	-42V	<table><tr><td>E</td><td>—</td></tr><tr><td>C</td><td>-1.1V</td></tr><tr><td>B</td><td>-42</td></tr></table>	E	—	C	-1.1V	B	-42	<table><tr><td>E</td><td>42.3V</td></tr><tr><td>C</td><td>1.2V</td></tr><tr><td>B</td><td>41.7V</td></tr></table>	E	42.3V	C	1.2V	B	41.7V	<table><tr><td>E</td><td>0.6V</td></tr><tr><td>C</td><td>54V</td></tr><tr><td>B</td><td>1.2V</td></tr></table>	E	0.6V	C	54V	B	1.2V	<table><tr><td>E</td><td>—</td></tr><tr><td>C</td><td>54V</td></tr><tr><td>B</td><td>—</td></tr></table>	E	—	C	54V	B	—	<table><tr><td>E</td><td>-0.6V</td></tr><tr><td>C</td><td>-54V</td></tr><tr><td>B</td><td>-1.1V</td></tr></table>	E	-0.6V	C	-54V	B	-1.1V	<table><tr><td>E</td><td>—</td></tr><tr><td>C</td><td>—</td></tr><tr><td>B</td><td>-54V</td></tr></table>	E	—	C	—	B	-54V	<table><tr><td>E</td><td>0V</td></tr><tr><td>C</td><td>0V</td></tr><tr><td>B</td><td>0.2V</td></tr></table>	E	0V	C	0V	B	0.2V	<table><tr><td>E</td><td>14.3V</td></tr><tr><td>C</td><td>-4.4V</td></tr><tr><td>B</td><td>14.2V</td></tr></table>	E	14.3V	C	-4.4V	B	14.2V
E	0.7V																																																																				
C	-42V																																																																				
B	0.1V																																																																				
E	—																																																																				
C	22V																																																																				
B	-42V																																																																				
E	—																																																																				
C	-1.1V																																																																				
B	-42																																																																				
E	42.3V																																																																				
C	1.2V																																																																				
B	41.7V																																																																				
E	0.6V																																																																				
C	54V																																																																				
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E	-0.6V																																																																				
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E	—																																																																				
C	—																																																																				
B	-54V																																																																				
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C	0V																																																																				
B	0.2V																																																																				
E	14.3V																																																																				
C	-4.4V																																																																				
B	14.2V																																																																				
Q18	Q19																																																																				
<table><tr><td>E</td><td>—</td></tr><tr><td>C</td><td>14V</td></tr><tr><td>B</td><td>0V</td></tr></table>	E	—	C	14V	B	0V	<table><tr><td>E</td><td>13.2V</td></tr><tr><td>C</td><td>14.3V</td></tr><tr><td>B</td><td>13.8V</td></tr></table>	E	13.2V	C	14.3V	B	13.8V																																																								
E	—																																																																				
C	14V																																																																				
B	0V																																																																				
E	13.2V																																																																				
C	14.3V																																																																				
B	13.8V																																																																				

### X09-239X-XX

IC1

1,2	5V	41	-28V
3-11	0V	42	-19V
12-15	5V	43	-29V
16	0V	44	-24V
17	5V	45	0V
18-28	0V	46	-29V
29	5V	47	-24V
30-32	0V	48	-20V
33	-7.5V	49-54	-25V
34	-9.4V	55	-20V
35	-1V	56	-24V
36	-10V	57	-30V
37	-19V	58	0V
38	-14V	59	1V
39	-15V	60	1.5V
40	-19V	61-64	5V

IC2-4

4	-14V
8	14V

IC5

1	0V
11,14	-14V
19	14V

IC6,7,8

7	-14V
14	14V

IC9

2	0V
4,8	-14V
13	14V
15	0V

Q1

E	-14V
C	14V
B	-

Q2

E	14V
C	-14V
B	-

Q6

E	14V
C	-14V
B	-

Q7

E	-14V
C	14V
B	-

Q8

E	-
C	-
B	14V

Q9

E	-
C	20V
B	-

Q10

E	14V
C	20V
B	-

Q11

E	-14V
C	-
B	-

Q12

E	3.3V
C	-14V
B	-

Q15,18

E	-
C	54V
B	-

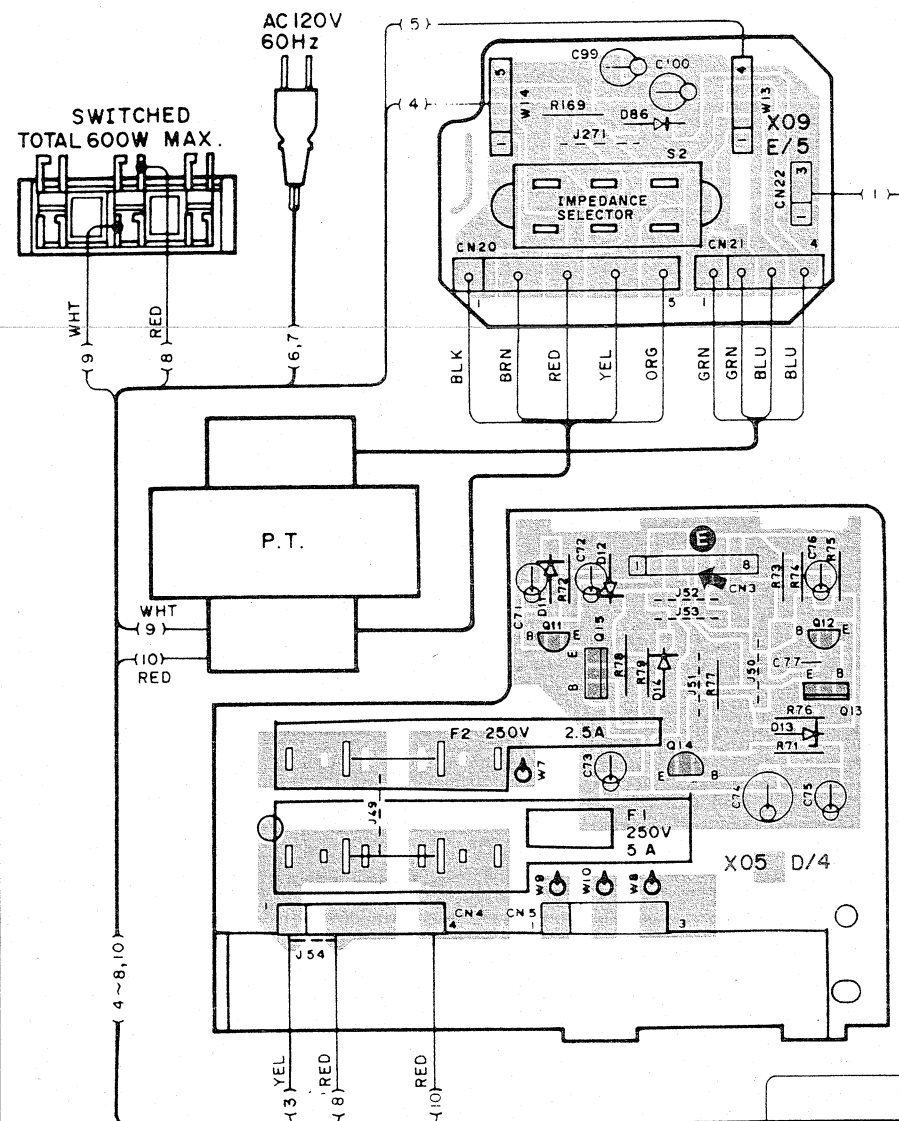
Q16,17

E	-
C	-54V
B	-

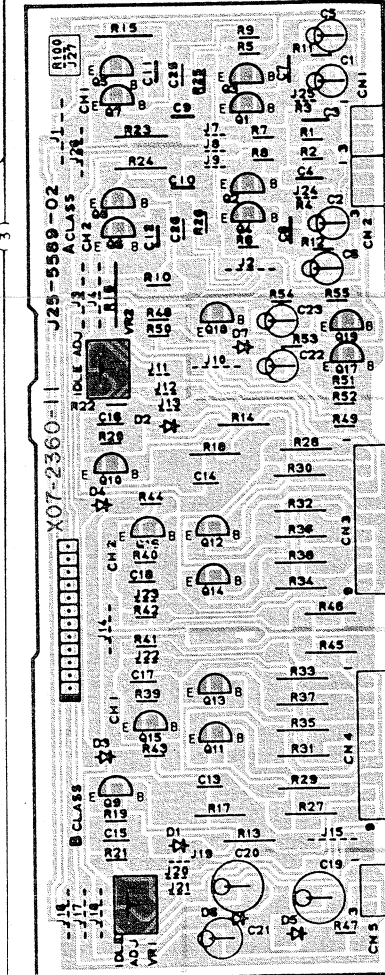
Q32,33

E	-
C	-14V
B	-

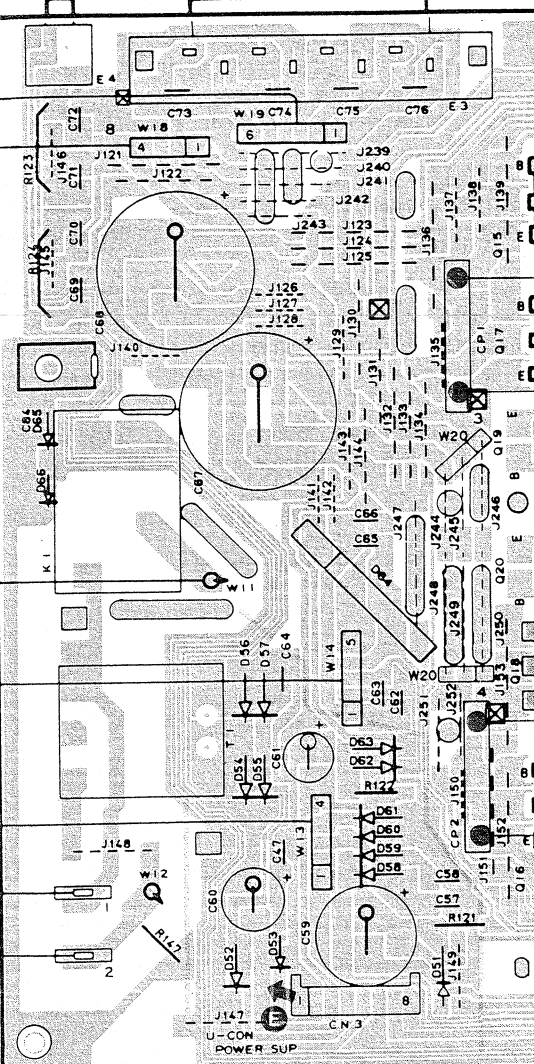
# PC BOARD (Component side view)



## POWER AMPLIFIER UNIT (X07-2360-11)



## SYSTEM SPEAKERS (A, B: 4Ω~16Ω, A+B: 8Ω~16Ω)



## AUDIO UNIT (X09-2390-11) 5/A

X09-2290-10 A/5

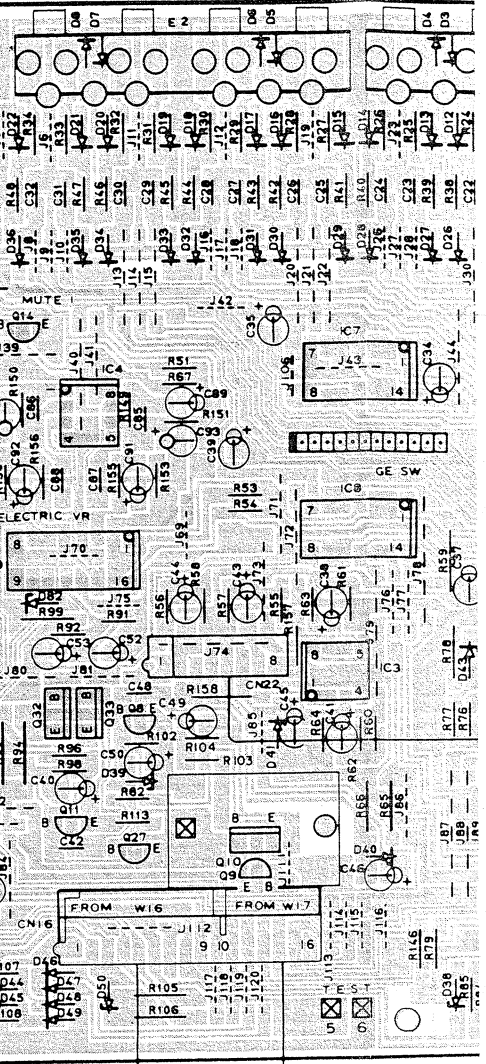
(d) IDEL CURRENT

DC voltmeter: 13 mV

(d) IDEL CURRENT

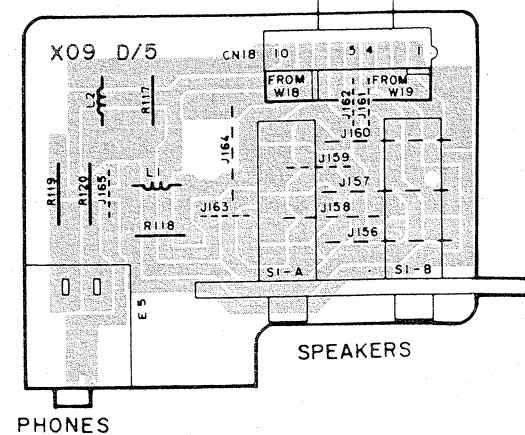
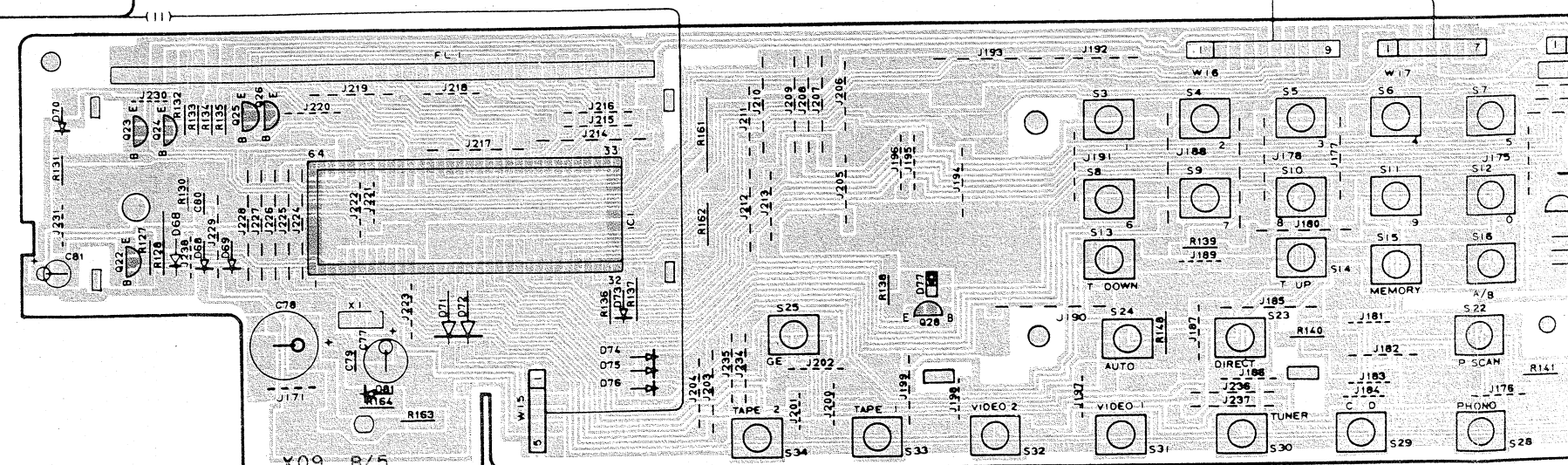
DC voltmeter: 13 mV

## TAPE 1 TAPE 2 VIDEO



## AUDIO UNIT (X09-2390-11) 5/B

X09 B/5

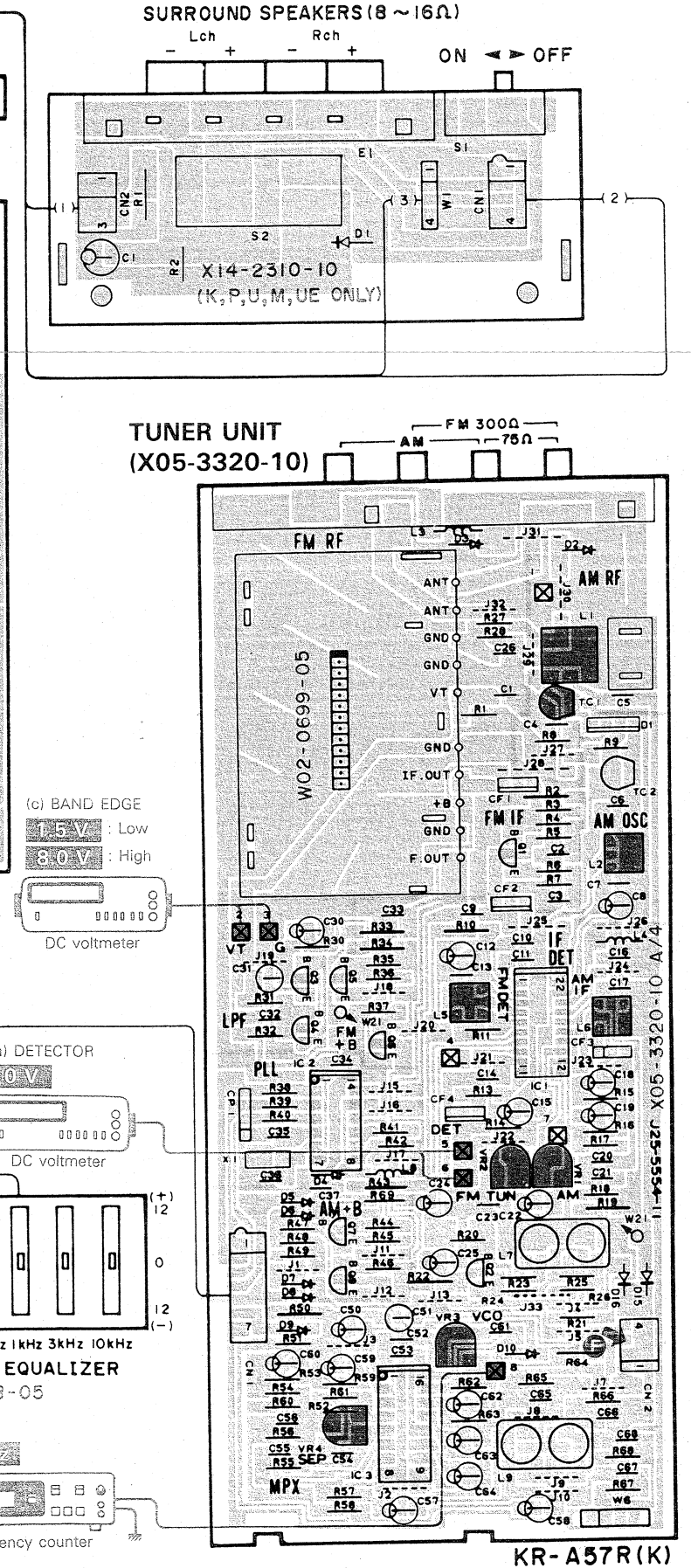


PHONES

SPEAKERS



F G H I J K L M N

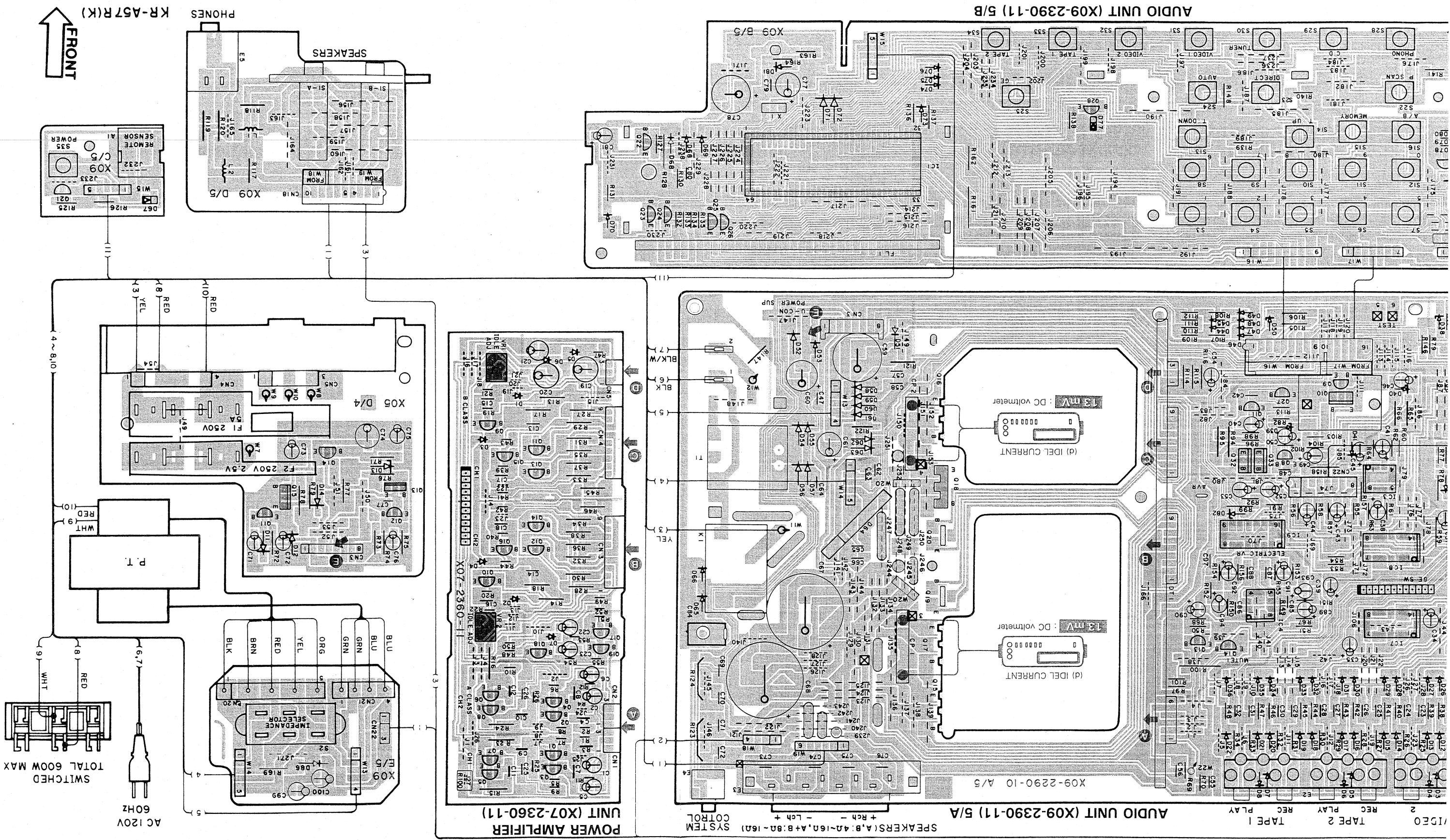








PC BOARD (Foil side view)



(X05-3320-10) (A/4)

\*(W02-0700-05)

(2-71)  
FM  
GND  
AM  
EI

TR1 : 3SK85  
TR2,3 : 2SC535 or 2SC3391  
TR4 : 2SC2839  
TR5 : 2SK439 or 2SK241  
D1~4 : 1SV110

\*(W02-0699-05)

(0-10)  
(0-81)  
75Ω  
FM  
GND  
AM  
EI

TR1 : 2SK439  
TR2,3 : 2SC3391  
TR4 : 2SC3494  
D1~3 : 1SV110

VT

GND

3

2

1

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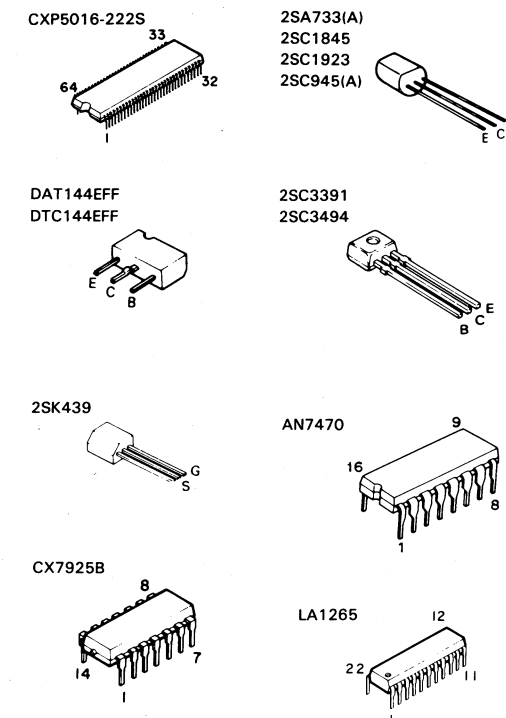
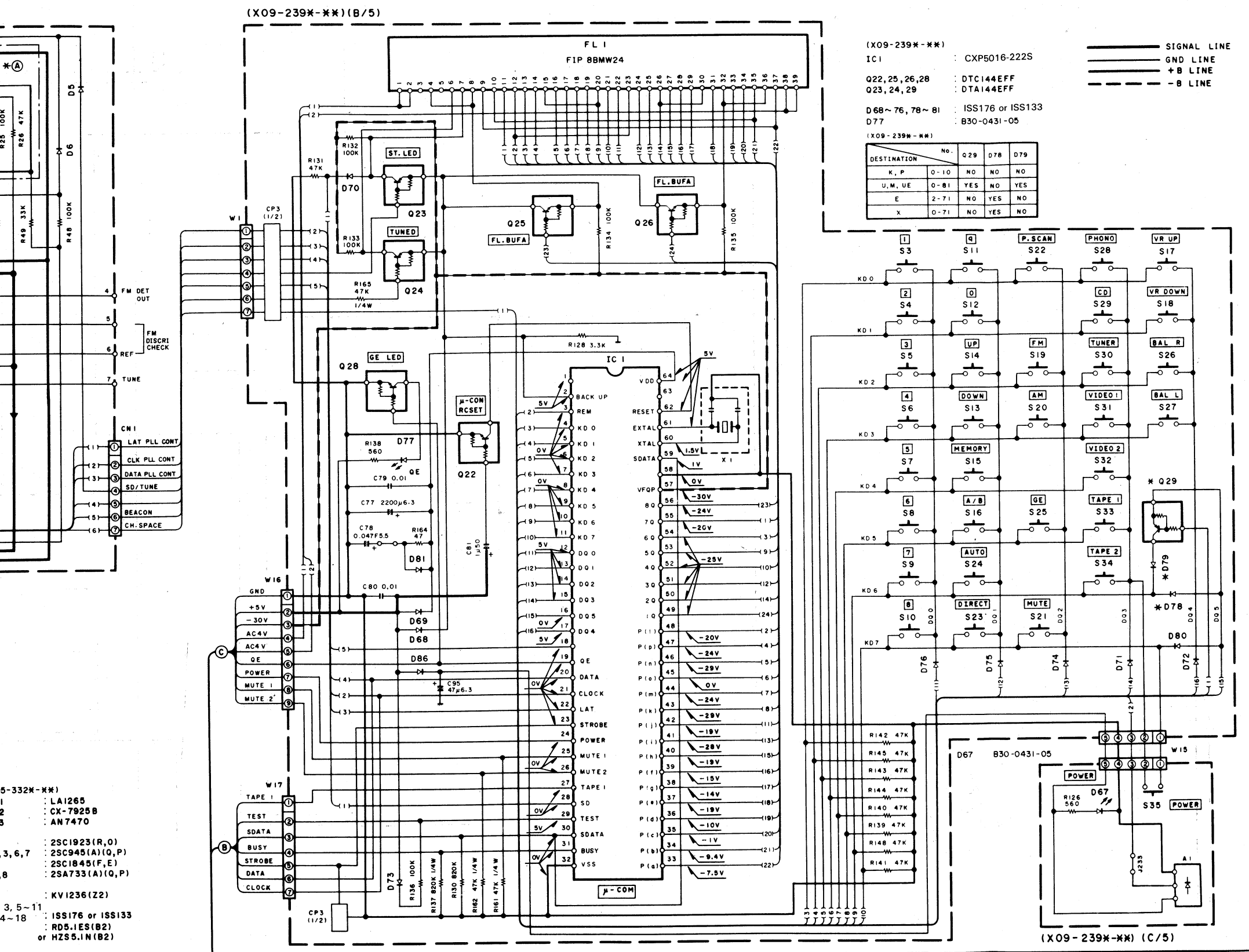
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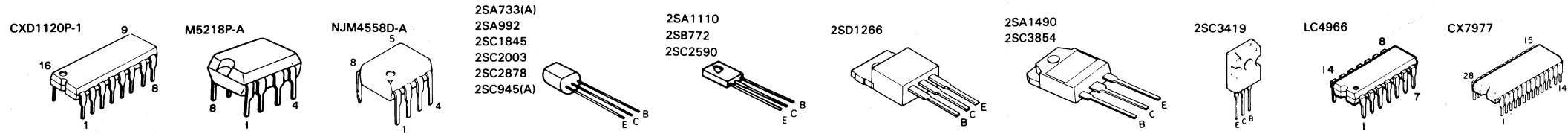
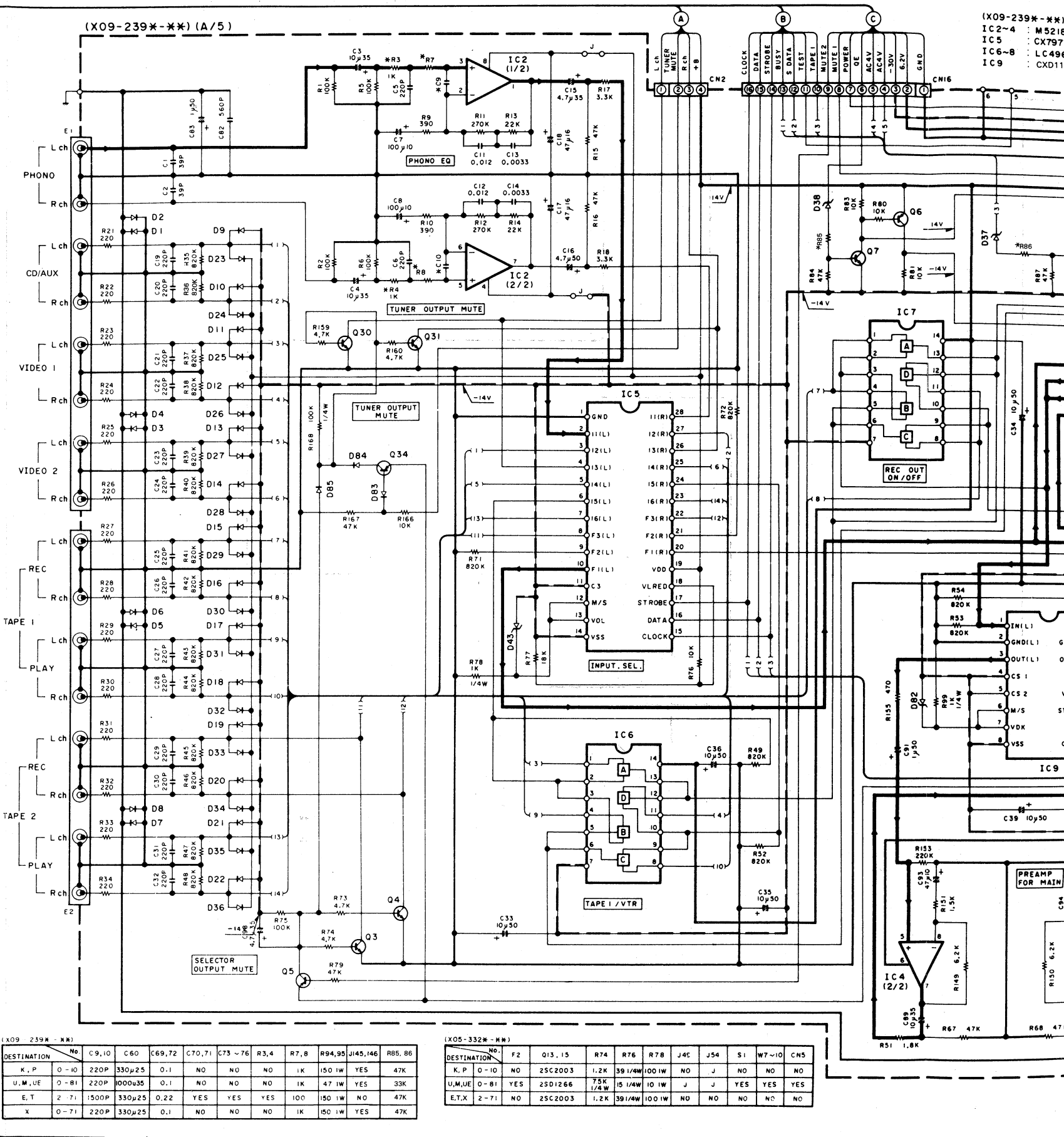
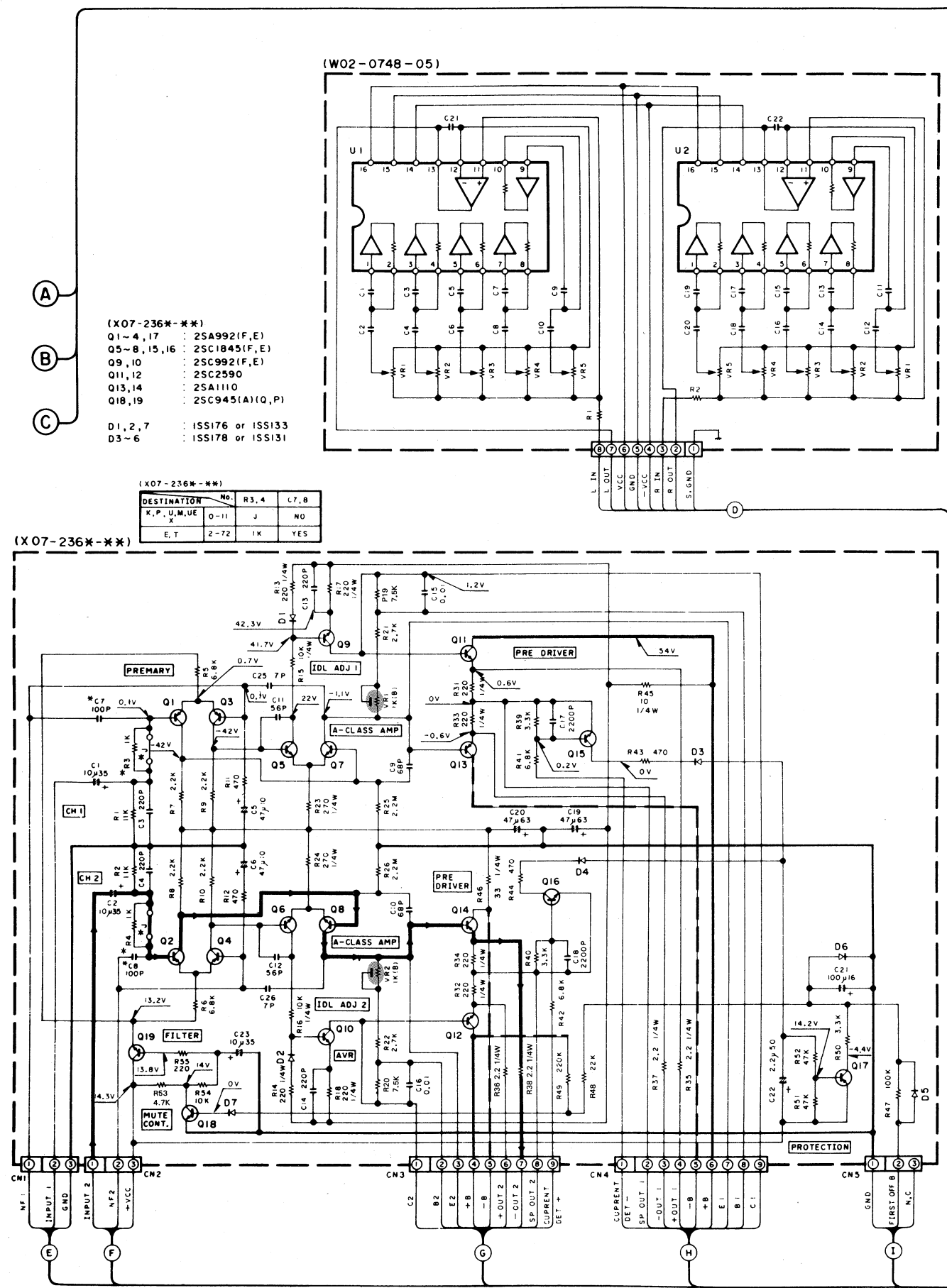


CF1, 2	①	R14	R20	R27	R28	R52	R59, 60	R61	R65, 66	R67, 68	C26	C54	C55, 56	C59, 60	C65, 66	C67, 68	VR4	S2, 3	L9	J8	J9	J10	J29	J32	J33	W6
L72-0531-05	NO	12K	47K	NO	NO	YES	NO	NO	220K	NO	NO	NO	150P	NO	0.043	NO	NO	NO	NO	YES	YES	NO	NO	NO	YES	NO
L72-0531-05	NO	33K	47K	NO	NO	YES	NO	NO	220K	YES	NO	NO	150P	NO	0.027	YES	NO	YES	NO	YES	YES	YES	NO	NO	YES	YES
L72-0536-05	YES	33K	1K	YES	YES	NO	YES	YES	3.9K	NO	YES	YES	1200P	YES	6800P	NO	YES	NO	YES	NO	NO	NO	YES	YES	NO	NO

KR-A57R (K) (1/2)

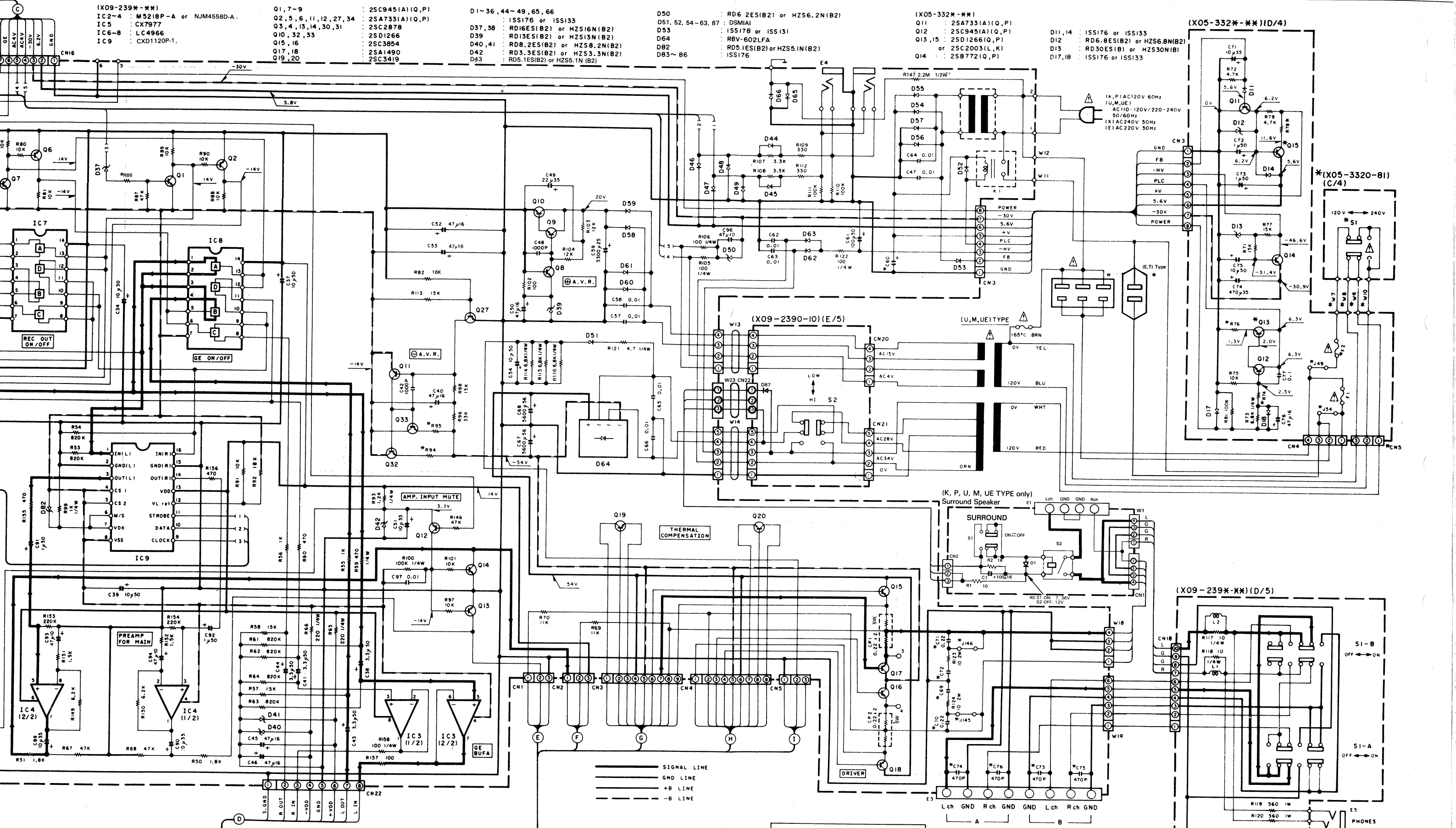
**KR-A57R**  
**KENWOOD**





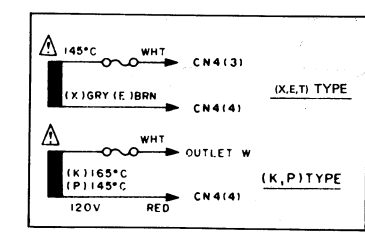
DC voltages are as measured with a high impedance voltmeter with no signal input. Values may vary slightly due to variations between individual instruments or/and units.

**CAUTION:** For components only v to parts list). reduce the risk



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance

measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

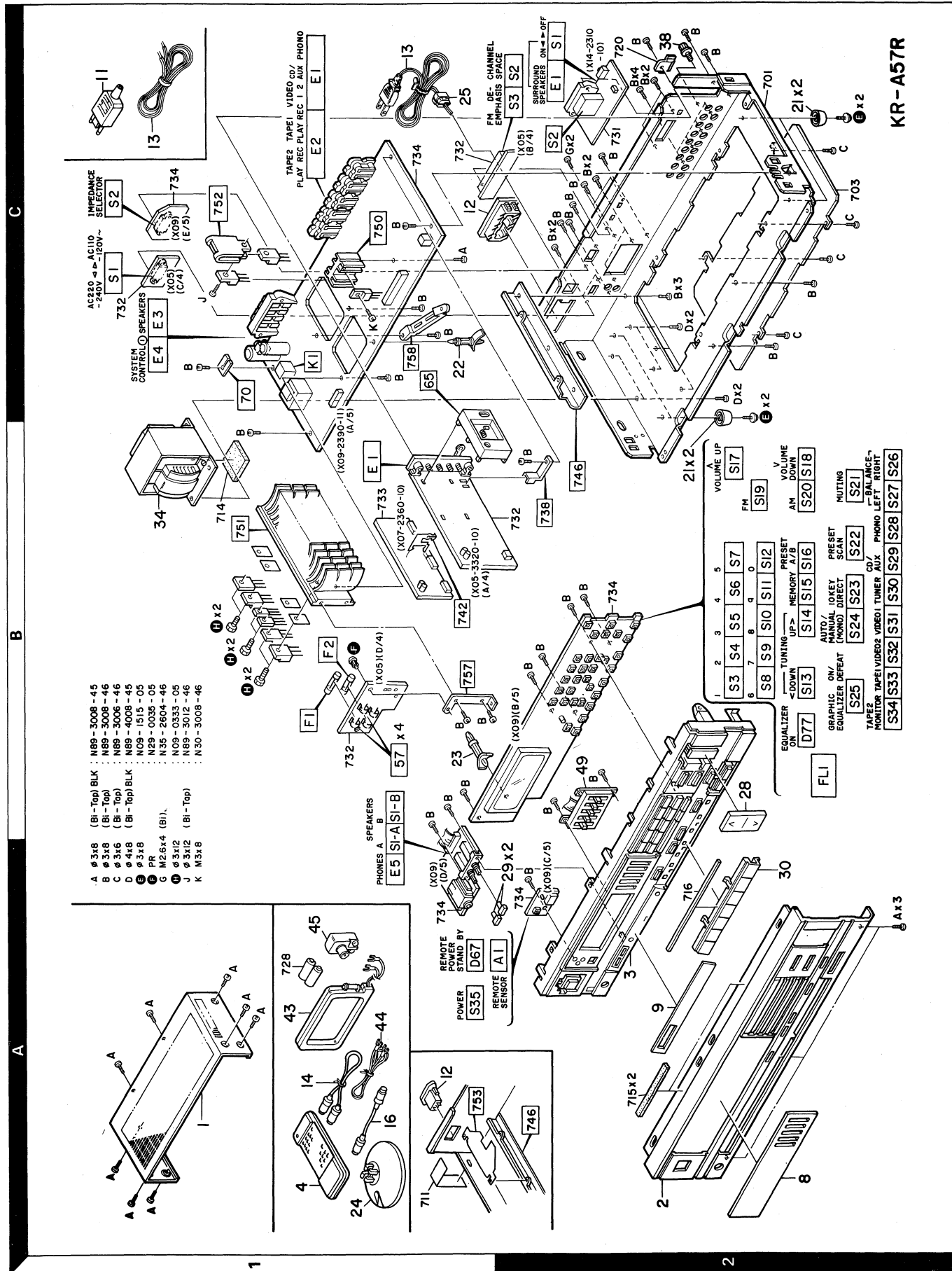


KR-A57R (K) (2/2)

**KR-A57R**  
**KENWOOD**

KR-A57R KR-A57R

## EXPLODED VIEW



**Parts with the exploded numbers larger than 700 are not supplied.**

## PARTS LIST

✱ New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le **Parts No.** ne sont pas fournis.

**Telle ohne Parts No. werden nicht geliefert.**

Ref. No.	Address	New Parts	Parts No.	Description	Destination	Remarks
参照番号	位置	新	部品番号	部品名 / 規格	仕向	備考
<b>KR-A57R</b>						
1	1A		A01-1544-01	METALLIC CABINET		
2	1C	*	A20-5536-02	PANEL		
3	2A		A22-0662-01	SUB PANEL		
4	1A		A70-0206-05	REMOTE CONTROLLER ASSY	KUUE	
4	1A		A70-0207-05	REMOTE CONTROLLER ASSY	PMXTE	
8	2A	*	B03-2452-03	DRESSING PLATE		
9	2A	*	B03-2453-04	DRESSING PLATE	KPUMUE	
9	2A	*	B03-2454-04	DRESSING PLATE	XTE	
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	UUE	
-			B46-0095-03	WARRANTY CARD	UUE	
-			B46-0096-13	WARRANTY CARD	X	
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-13	WARRANTY CARD	E	
-			B46-0143-03	WARRANTY CARD	T	
-		*	B50-8919-00	INSTRUCTION MANUAL (ENGLISH)	KUUE	
-		*	B50-8920-00	INSTRUCTION MANUAL (ENG, FRE)	P	
-		*	B50-8921-00	INSTRUCTION MANUAL (E, F, SP)	M	
-		*	B50-8922-00	INSTRUCTION MANUAL (F, G, D, E)	E	
-		*	B50-9006-00	INSTRUCTION MANUAL (ENGLISH)	T	
-		*	B50-9070-00	INSTRUCTION MANUAL (ENG, FRE)	X	
-			B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-			B58-0269-04	CAUTION CARD	K	
-			B58-0389-04	CAUTION CARD		
-			B58-0513-04	CAUTION CARD (PRESET 220-240)	UE	
-			B58-0803-13	CAUTION CARD	E	
-			B59-0092-00	SERVICE DIRECTORY	UUE	
△ 11	1C		E03-0049-05	AC PLUG	T	
△ 12	1A		E03-0055-05	AC OUTLET	E	
△ 12	1C		E03-0085-05	AC OUTLET	T	
△ 12	1C		E03-0086-05	AC OUTLET	KPUMUE	
△ 13	1C		E30-0459-05	AC POWER CORD	E	
△ 13	1C		E30-0812-05	AC POWER CORD	UMUE	
△ 13	1C		E30-1341-05	AC POWER CORD	X	
△ 13	1C		E30-1416-05	AC POWER CORD	T	
△ 13	1C		E30-2209-05	AC POWER CORD	KP	
14	1A		E30-0977-05	CORD WITH PLUG (L=1500)	E	
16	1A		E30-1392-05	CORD WITH PLUG (L=660)	E	
-		*	H01-7863-04	ITEM CARTON CASE		
-			H10-3400-02	POLYSTYRENE FOAMED FIXTURE		
-			H12-1161-04	PACKING FIXTURE		
-			H25-0181-04	PROTECTION BAG (150X260X0.05)		
-			H25-0223-04	PROTECTION BAG (750X350X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
21	2B, 2C		J02-0170-04	FOOT		
22	1C		J19-0506-05	UNIT HOLDER (H=8.3)		
23	1B		J19-0516-05	UNIT HOLDER (H=21.0)		
24	1A		J19-2815-04	ANTENNA HOLDER		
△ 25	1C		J42-0083-05	POWER CORD BUSHING		
			J61-0307-05	WIRE BAND		

**E: Scandinavia & Europe   K: USA   P: Canada**

**U:** PX(Far East, Hawaii)    **T:** England    **M:** Other Areas

**UE** : AAFES(Europe)      **X**: Australia

 indicates safety critical components.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
28	2B	*	K27-1912-04	KN8B (BUTTON) VOLUME		
29	2A		K27-1304-04	KN8B (BUTTON) SPEAKERS		
30	2A	*	K29-3203-03	KN8B (BUTTON) SELECTOR		
△ 34	1B		L01-7641-05	POWER TRANSFORMER	K	
△ 34	1B	*	L01-7642-15	POWER TRANSFORMER	E	
△ 34	1B		L01-7645-05	POWER TRANSFORMER	UMUE	
△ 34	1B		L01-7647-05	POWER TRANSFORMER	P	
△ 34	1B		L01-7648-05	POWER TRANSFORMER	XT	
38	2C		N08-0128-35	BINDING POST (GND)		
E 2C			N09-1515-05	TAPPING SCREW (Ø3X8) FOOT		
F 1B			N29-0035-05	PUSH RIVET (3.5X5.5)		
43	1A		T90-0104-25	LOOP ANTENNA		
44	1A		T90-0121-05	T TYPE ANTENNA		
45	1A		T90-0136-05	ANTENNA ADAPTOR	XTE	
-			M50461-0575P	IC(REMOTE CONTROLLER)		
49	2B		W02-0748-05	ELECTRIC CIRCUIT MODULE		
TUNER UNIT (X05-3320-10)						
C1 -4			CK45FF1H103Z	CERAMIC 0.010UF Z		
C5			CK45FF1H223Z	CERAMIC 0.022UF Z		
C6			CC93FCH1H391J	CERAMIC 390PF J		
C7			CK45FF1H103Z	CERAMIC 0.010UF Z		
C8			CE04JW1V100M	ELECTRO 10UF 35WV		
C9 -11			CK45FF1H103Z	CERAMIC 0.010UF Z		
C12			CE04LW1C470M	ELECTRO 47UF 16WV		
C13			CK45FF1H103Z	CERAMIC 0.010UF Z		
C14			CC45FSL1H101J	CERAMIC 100PF J		
C15			CE04LW1HR47M	ELECTRO 0.47UF 50WV		
C16 ,17			CK45FF1H223Z	CERAMIC 0.022UF Z		
C18			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C19			CE04LW1H3R3M	ELECTRO 3.3UF 50WV		
C20			CK45FF1H223Z	CERAMIC 0.022UF Z		
C21			CF92FV1H273J	MF 0.027UF J		
C22			CE04LW1V100M	ELECTRO 10UF 35WV		
C23			CK45FF1H223Z	CERAMIC 0.022UF Z		
C24			CE04LW1HR47M	ELECTRO 0.47UF 50WV		
C25			CE04LW1C470M	ELECTRO 47UF 16WV	XTE	
C26			CK45FF1H103Z	CERAMIC 0.010UF Z	XTE	
C30			CE04LW1C470M	ELECTRO 47UF 16WV		
C31			C90-1349-05	NP-ELEC 1UF 50WV		
C32			CF92FV1H473J	MF 0.047UF J		
C33 ,34			CK45FF1H103Z	CERAMIC 0.010UF Z		
C35		*	CC45FCH1H560J	CERAMIC 56PF J		
C36		*	CC45FCH1H270J	CERAMIC 27PF J		
C37			CK45FF1H103Z	CERAMIC 0.010UF Z		
C38			CC45FSL1H220J	CERAMIC 22PF J		
C50			CE04LW1C101M	ELECTRO 100UF 16WV		
C51			C90-1332-05	NP-ELEC 10UF 25WV		
C52			CK45FB1H471K	CERAMIC 470PF K		
C53			CF92FV1H473J	MF 0.047UF J		
C54			CC45FSL1H151J	CERAMIC 150PF J	XTE	
C55 ,56			CC45FSL1H151J	CERAMIC 150PF J	KPUMUE	
C55 ,56			CF92FV1H122J	MF 1200PF J	XTE	

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C57 ,58			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C59 ,60			CE04LW1C220M	ELECTRO 22UF 16WV	XTE	
C61			CC93FCH1H471J	CERAMIC 470PF J		
C62			CE04LW1H3R3M	ELECTRO 3.3UF 50WV		
C63			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C64			CE04LW1HR47M	ELECTRO 0.47UF 50WV		
C65 ,66			CF92FV1H273J	MF 0.027UF J	UMUE	
C65 ,66			CF92FV1H433J	MF 0.043UF J	KP	
C65 ,66			CF92FV1H682J	MF 6800PF J	XTE	
C67 ,68			CF92FV1H153J	MF 0.015UF J	UMUE	
C71			CE04LW1V100M	ELECTRO 10UF 35WV		
C72 ,73			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C74		*	CE04LW1V471M	ELECTRO 470UF 35WV		
C75			CE04LW1H100M	ELECTRO 10UF 50WV		
C76			CE04LW1C470M	ELECTRO 47UF 16WV		
C77			CF92FV1H104J	MF 0.10UF J		
TC1 ,2			C05-0303-05	CERAMIC TRIMMER CAPACITOR(20PF)		
E1	1B		E20-0318-05	SCREW TERMINAL BOARD(2P)FM/AM	XTE	
E1	1B		E20-0452-05	SCREW TERMINAL BOARD(4P)FM/AM	KPUMUE	
△ F1	1B		F06-2021-05	FUSE (SEMKO) (250V T2A)	XTE	
△ F1	1B		F06-5022-05	FUSE (UL) (250V 5A)	KP	
△ F1 ,2	1B		F05-2521-05	FUSE (250V 2.5A)	UMUE	
57	1B		J13-0041-05	FUSE CLIP	KPUMUE	
57	1B		J13-0054-05	FUSE CLIP	XTE	
CF1 ,2			L72-0531-05	CERAMIC FILTER	KPUMUE	
CF1 ,2			L72-0536-05	CERAMIC FILTER	XTE	
CF3			L72-0099-05	CERAMIC FILTER		
CF4			L72-0096-05	CERAMIC FILTER		
L1			L31-0509-05	MW-RF COIL		
L2			L32-0277-15	MW OSCILLATING COIL		
L3			L40-1092-14	SMALL FIXED INDUCTOR(1.0UH,M)		
L4			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)		
L5			L30-0439-15	FM IFT		
L6			L30-0362-05	AM IFT		
L7			L79-0125-05	LC FILTER	XTE	
L8			L40-1092-14	SMALL FIXED INDUCTOR(1.0UH,M)		
L9		*	L79-0739-05	LC FILTER	XTE	
X1			L77-0573-05	CRYSTAL RESONATOR(4.5MHZ)		
R2			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R10			RD14GB2E100J	FL-PROOF RD 10 J 1/4W		
R19			RD14GB2E471J	FL-PROOF RD 470 J 1/4W		
R22			RD14GB2E101J	FL-PROOF RD 100 J 1/4W	XTE	
R33			RD14GB2E151J	FL-PROOF RD 150 J 1/4W		
R34			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R43			RS14KB3A181J	FL-PROOF RS 180 J 1W		
R50			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R76			RD14GB2E150J	FL-PROOF RD 15 J 1/4W	UMUE	
R76			RD14GB2E390J	FL-PROOF RD 39 J 1/4W	KPXTE	
R78			RS14KB3A100J	FL-PROOF RS 10 J 1W	UMUE	
R78			RS14KB3A101J	FL-PROOF RS 100 J 1W	KPXTE	
VR1			R12-3096-05	TRIMMING POT. (10K) FM TUNE LVL		
VR2			R12-3097-05	TRIMMING POT. (22K) AM TUNE LVL		
VR3			R12-1069-05	TRIMMING POT. (4.7K) VCO		

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VR4			R12-5047-05	TRIMMING POT. (220K)SEPA	XTE	
△ S1	1C		S31-2126-05	SLIDE SWITCH (POWER TYPE)	UMUE	
S2 ,3	2C		S31-2072-05	SLIDE SWITCH (FM,CH SPACE)	UMUE	
D1			KV1236(Z2)	VARIABLE CAPACITANCE DIODE		
D2 ,3			1SS133	DIODE		
D2 ,3			1SS176	DIODE		
D4			HZS5.1N(B2)	ZENER DIODE		
D4			RD5.1ES(B2)	ZENER DIODE		
D5 -11			1SS133	DIODE		
D5 -11			1SS176	DIODE		
D12			HZS6.8N(B2)	ZENER DIODE		
D12			RD6.8ES(B2)	ZENER DIODE		
D13		*	HZS30N(B)	ZENER DIODE		
D13		*	RD30ES(B)	ZENER DIODE		
D14 -18			1SS133	DIODE		
D14 -18			1SS176	DIODE		
IC1			LA1265	IC(FM/AM TUNER)		
IC2			CX-7925B	IC(DIGITAL SELECT PLL)		
IC3			AN7470	IC(FM MPX)		
Q1			2SC1923(R,B)	TRANSISTOR		
Q2 ,3			2SC945(A)(Q,P)	TRANSISTOR	XTE	
Q3			2SC945(A)(Q,P)	TRANSISTOR	KPUMUE	
Q4			2SC1845(F,E)	TRANSISTOR		
Q5			2SA733(A)(Q,P)	TRANSISTOR		
Q6 ,7			2SC945(A)(Q,P)	TRANSISTOR		
Q8			2SA733(A)(Q,P)	TRANSISTOR		
Q11			2SA733(A)(Q,P)	TRANSISTOR		
Q12			2SC945(A)(Q,P)	TRANSISTOR		
Q13			2SC2003(L,K)	TRANSISTOR	KPXTE	
Q13			2SD1266(Q,P)	TRANSISTOR	UMUE	
Q14			2SB772(Q,P)	TRANSISTOR		
Q15			2SC2003(L,K)	TRANSISTOR	KPXTE	
Q15			2SD1266(Q,P)	TRANSISTOR	UMUE	
65	1C		W02-0699-05	FM FRONT-END ASSY	KPUMUE	
65	1C		W02-0700-05	FM FRONT-END ASSY	XTE	
POWER AMPLIFIER UNIT (X07-2360-11)						
C1 ,2			CE04LW1V100M	ELECTRO 10UF 35WV		
C3 ,4			CC45FSL1H221J	CERAMIC 220PF J		
C5 ,6			CE04LW1A470M	ELECTRO 47UF 10WV		
C7 ,8			CC45FSL1H101J	CERAMIC 100PF J	E	
C9 ,10			CC45FSL1H680J	CERAMIC 68PF J		
C11 ,12			CC45FSL1H560J	CERAMIC 56PF J		
C13 ,14			CC45FSL1H221J	CERAMIC 220PF J		
C15 ,16			CK45FF1H103Z	CERAMIC 0.010UF Z		
C17 ,18			CK45FB1H222K	CERAMIC 2200PF K		
C19 ,20			CE04LW1J470M	ELECTRO 47UF 63WV		
C21			CE04LW1C101M	ELECTRO 100UF 16WV		
C22			CE04LW1H2R2M	ELECTRO 2.2UF 50WV		
C23			CE04LW1V100M	ELECTRO 10UF 35WV		
C25 ,26			CC45FSL1H070D	CERAMIC 7.0PF D		
R13 ,14			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R17 ,18			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R23 ,24			RD14GB2E271J	FL-PROOF RD 270 J 1/4W		

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R31 -34 R35 -38 R45 R46 VR1 .2			RD14GB2E221J RD14GB2E2R2J RD14GB2E100J RD14GB2E330J R12-1070-05	FL-PROOF RD 220 J 1/4W FL-PROOF RD 2.2 J 1/4W FL-PROOF RD 10 J 1/4W FL-PROOF RD 33 J 1/4W TRIMMING PGT. (1K) IDLE ADJ		
D1 .2 D1 .2 D3 -6 D3 -6 D7			1SS133 1SS176 1SS131 1SS178 1SS133	DIODE DIODE DIODE DIODE DIODE		
D7 Q1 -4 Q5 -8 Q9 .10 Q11 .12			1SS176 2SA992(F,E) 2SC1845(F,E) 2SA992(F,E) 2SC259D	DIODE TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q13 .14 Q15 .16 Q17 Q18 .19			2SA111D 2SC1845(F,E) 2SA992(F,E) 2SC945(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
<b>AUDIO UNIT (X09-2390-11)</b>						
D67 D77	2A 2B		B30-0431-05 B30-0431-05	LED(LN21CPH) REMOTE POWER LED(LN21CPH) EQ ON		
C1 .2 C3 .4 C5 .6 C7 .8 C9			CC45FSL1H390J CE04LW1V100M CC45FSL1H221J CE04LW1A101M CC45FSL1H221J	CERAMIC 39PF J ELECTRO 10UF 35WV CERAMIC 220PF J ELECTRO 100UF 10WV CERAMIC 220PF J	KPUMUE	
C9 C9 C10 C10 C10			CC45FSL1H221J CF92FV1H152J CC45SL1H221J CC45SL1H221J CF92V1H152J	CERAMIC 220PF J MF 1500PF J CERAMIC 220PF J CERAMIC 220PF J MF 1500PF J	XT E KPUMUE XT E	
C11 .12 C13 .14 C15 C16 C17 .18			CF92FV1H123J CF92FV1H332J CE04LW1V4R7M CE04JW1H4R7M CE04LW1C470M	MF 0.012UF J MF 3300PF J ELECTRO 4.7UF 35WV ELECTRO 4.7UF 50WV ELECTRO 47UF 16WV		
C19 -32 C33 -37 C38 C39 C40			CC45FSL1H221J CE04LW1H100M CE04LW1H3R3M CE04LW1H100M CE04LW1C470M	CERAMIC 220PF J ELECTRO 10UF 50WV ELECTRO 3.3UF 50WV ELECTRO 10UF 50WV ELECTRO 47UF 16WV		
C41 C42 C43 .44 C45 .46 C47			CE04LW1H3R3M CK45FB1H102K CE04LW1H3R3M CE04LW1C470M CK45FF1H103Z	ELECTRO 3.3UF 50WV CERAMIC 1000PF K ELECTRO 3.3UF 50WV ELECTRO 47UF 16WV CERAMIC 0.010UF Z		
C48 C49 C50 C51 C52 .53		*	CK45FB1H102K CE04LW1V220M CE04LW1C470M CE04LW1V100M CE04LW1C470M	CERAMIC 1000PF K ELECTRO 22UF 35WV ELECTRO 47UF 16WV ELECTRO 10UF 35WV ELECTRO 47UF 16WV		
C54 C57 .58			CE04JW1H100M CK45FF1H103Z	ELECTRO 10UF 50WV CERAMIC 0.010UF Z		

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C59		*	CE04EW1E332M	ELECTR0 3300UF 25WV	KPXTE UMUE	
C60		*	CE04EW1E331M	ELECTR0 330UF 25WV		
C60			CE04EW1V102M	ELECTR0 1000UF 35WV		
C61			CE04LW1H101M	ELECTR0 100UF 50WV		
C62 -66			CK45FF1H103Z	CERAMIC 0.010UF Z		
C67 ,68		*	C90-1504-05	ELECTR0 5600UF 56WV	KPUMUE XT E KPUMUE	
C69			CF92FV1H104J	MF 0.10UF J		
C69			CF92FV1H104J	MF 0.10UF J		
C69 -72			CF92FV1H224J	MF 0.22UF J		
C72			CF92FV1H104J	MF 0.10UF J		
C72			CF92FV1H104J	MF 0.10UF J	XT E	
C73 -76			CK45FB1H471K	CERAMIC 470PF K		
C77			CE04EW0J222M	ELECTR0 2200UF 6.3WV		
C78		*	C91-0937-05	BACKUP 0.047F 5.5WV		
C79 ,80			CK45FF1H103Z	CERAMIC 0.010UF Z		
C81			CE04JW1H010M	ELECTR0 1.0UF 50WV		
C82			CK45FB1H561K	CERAMIC 560PF K		
C83			CE04LW1H010M	ELECTR0 1.0UF 50WV		
C89 ,90			CE04LW1V100M	ELECTR0 10UF 35WV		
C91			CE04LW1H010M	ELECTR0 1.0UF 50WV		
C92			CE04JW1H010M	ELECTR0 1.0UF 50WV		
C93 ,94			CE04LW1A470M	ELECTR0 47UF 10WV		
C95			CE04JW0J470M	ELECTR0 47UF 6.3WV		
C96			CE04EW1A470M	ELECTR0 47UF 10WV		
C97			CK45FF1H103Z	CERAMIC 0.010UF Z		
C98			CE04LW1V4R7M	ELECTR0 4.7UF 35WV		
70	1B		E23-0149-05	TERMINAL		
E1 ,2	1C	*	E13-0819-05	PHONE JACK (TAPE,VIDEO)		
E3	1C		E20-0823-05	LOCK TERMINAL BOARD(8P)SPKRS		
E4	1C		E11-0165-05	MINIATURE PHONE JACK(SYNCR0)		
E4	1C		E11-0168-05	MINIATURE PHONE JACK(SYNCR0)	KPUMUE XTE	
E5	1A		E11-0162-05	PHONE JACK (3P)	KP E UMUE XT	
L1 ,2			L39-0085-05	PHASE-COMPENSATION COIL		
△ T1		*	L01-7651-05	POWER TRANSFORMER		
△ T1		*	L01-7652-05	POWER TRANSFORMER		
△ T1		*	L01-7655-05	POWER TRANSFORMER		
△ T1		*	L01-7657-05	POWER TRANSFORMER		
X1			L78-0218-05	RESONATOR		
H	1B		N09-0333-05	TAPPING SCREW (/3X12)		
CP1 ,2			R90-0187-05	MULTI-COMP 0.22X2 K 5W		
CP3		*	R90-0485-05	MULTI-COMP 47PX9 J		
R65 ,66			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R94 ,95			RS14KB3A151J	FL-PROOF RS 150 J 1W	KPXTE UMUE	
R94 ,95			RS14KB3A470J	FL-PROOF RS 47 J 1W		
R117,118			RD14GB2E100J	FL-PROOF RD 10 J 1/4W		
R119,120			RS14KB3A561J	FL-PROOF RS 560 J 1W		
R121			RD14GB2E4R7J	FL-PROOF RD 4.7 J 1/4W		
R122			RD14GB2E101J	FL-PROOF RD 100 J 1/4W	KP	
R123,124			RS14KB3D100J	FL-PROOF RS 10 J 2W		
R147			R92-0173-05	RC 2.2M M 1/2W		
△ K1	1C		S51-1036-05	MAGNETIC RELAY		

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S1	1A	*	S42-2156-05	MULTIPLE PUSH SWITCH(SPEAKERS)		
S2	1C		S31-2113-05	SLIDE SWITCH (IMPEDANCE SEL)		
S3 -16	2B		S40-1064-05	PUSH SWITCH (PRESET)		
S17	2B		S40-1064-05	PUSH SWITCH (VOL-UP)		
S18 -35	2B		S40-1064-05	PUSH SWITCH (PWR,FUNCTION)		
D1 -36			1SS133	DIODE		
D1 -36			1SS176	DIODE		
D37 ,38			HZS16N(B2)	ZENER DIODE		
D37 ,38			RD16ES(B2)	ZENER DIODE		
D39			HZS13N(B2)	ZENER DIODE		
D39			RD13ES(B2)	ZENER DIODE		
D40 ,41			HZS8.2N(B2)	ZENER DIODE		
D40 ,41			RD8.2ES(B2)	ZENER DIODE		
D42			HZS3.3N(B2)	ZENER DIODE		
D42			RD3.3ES(B2)	ZENER DIODE		
D43			HZS5.1N(B2)	ZENER DIODE		
D43			RD5.1ES(B2)	ZENER DIODE		
D44 -49			1SS133	DIODE		
D44 -49			1SS176	DIODE		
D50			HZS6.2N(B2)	ZENER DIODE		
D50			RD6.2ES(B2)	ZENER DIODE		
D51 ,52			DSM1A1	DIODE		
D53			1SS131	DIODE		
D53			1SS178	DIODE		
D54 -63			DSM1A1	DIODE		
D64			RBV-602LFA	DIODE		
D65 ,66			1SS133	DIODE		
D65 ,66			1SS176	DIODE		
D68 -76			1SS133	DIODE		
D68 -76			1SS176	DIODE		
D78			1SS133	DIODE	XTE	
D78			1SS176	DIODE	XTE	
D79 -81			1SS133	DIODE	UMUE	
D79 -81			1SS176	DIODE	UMUE	
D80 ,81			1SS133	DIODE	KPXTE	
D80 ,81			1SS176	DIODE	KPXTE	
D82			HZS5.1N(B2)	ZENER DIODE		
D82			RD5.1ES(B2)	ZENER DIODE		
D83 -86			1SS133	DIODE		
D83 -86			1SS176	DIODE		
D87			DSM1A1	DIODE	KPUMUE	
FL1	2B	*	FIP8BMW24	FLUORESCENT INDICATOR TUBE		
IC1			CXP5016-222S	IC(MICROPROCESSOR)		
IC2 -4			M5218P-A	IC(OP AMP X2)		
IC2 -4			NJM4558D-A	IC(OP AMP X2)		
IC5			CX7977	IC(FUNCTION SW FOR AUDIO)		
IC6 -8			LC4966	IC(CMOS LOGIC BILATERAL SW)		
IC9			CXD1120P-1	IC(ELECTRONIC VOLUME)		
Q1			2SC945(A) (Q,P)	TRANSISTOR		
Q2			2SA733(A) (Q,P)	TRANSISTOR		
Q3 ,4			2SC2878	TRANSISTOR		
Q5 ,6			2SA733(A) (Q,P)	TRANSISTOR		
Q7 -9			2SC945(A) (Q,P)	TRANSISTOR		
Q10			2SD1266	TRANSISTOR		
Q11 ,12			2SA733(A) (Q,P)	TRANSISTOR		

E: Scandinavia & Europe K: USA P: Canada

U: PX(Far East, Hawaii) T: England M: Other Areas

UE: AAFES(Europe) X: Australia

▲ indicates safety critical components.

## PARTS LIST

\* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Telle ohne Parts No. werden nicht geliefert.

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名 / 規格	Desti- nation 仕向	Re- marks 備考
Q13 ,14 Q15 ,16 Q17 ,18 Q19 ,20 Q22			2SC2878 2SC3854 2SA1490 2SC3419 DTC144EFF	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR		
Q23 ,24 Q25 ,26 Q27 Q28 Q29			DTA144EFF DTC144EFF 2SA733(A)(Q,P) DTC144EFF DTA144EFF	DIGITAL TRANSISTOR DIGITAL TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR	UMUE	
Q30 ,31 Q32 ,33 Q34			2SC2878 2SD1266 2SA733(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR		
A1	2A		W02-0692-05	ELECTRIC CIRCUIT MODULE		
<b>QUASI-STEREO UNIT (X41-2310-10) K, P, M, UE only</b>						
C1			CE04LW1C101M	ELECTRO 100UF 16WV		
E1	2C		E20-0459-05	LOCK TERMINAL BOARD (SURR SP)		
R1			RD14GB2E100J	FL-PROOF RD 10 J 1/4W		
S1	2C		S31-2094-05	SLIDE SWITCH		
S2	2C	*	S51-2085-05	MAGNETIC RELAY		
D1			DSM1A1	DIODE		
D1			S5566B	DIODE		
<b>FM FRONT-END Ass'y (W02-0699-05) K, P, U, M, UE only</b>						
D1 -3			1SV110	DIODE		
TR1			2SK439	TRANSISTOR		
TR2 ,3			2SC3391	TRANSISTOR		
TR4			2SC3490	TRANSISTOR		
<b>FM FRONT-END Ass'y (W02-0700-05) X, T, E only</b>						
D1 -4			1SV110	DIODE		
TR1			3SK85	FET		
TR2 ,3			2SC3391	TRANSISTOR		
TR2 ,3			2SC535	TRANSISTOR		
TR4			2SC2839	TRANSISTOR		
TR5			2SC241	TRANSISTOR		
TR5			2SK439	TRANSISTOR		

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 indicates safety critical components.

## SPECIFICATIONS

### AUDIO SECTION

#### Power Output

**55 watts per channel minimum RMS, both channel driven at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.08% total harmonic distortion.**

60 watts per channel minimum RMS, both channel driven into 8 ohms at 1 kHz with no more than 0.08 % total harmonic distortion

#### Total Harmonic Distortion (20 Hz-20,000 Hz,

8 ohms)..... 0.08% at 55W

(1 kHz, 8 ohms)..... 0.01% at 55W

#### Intermodulation

distortion ..... 0.08% at 55W

#### Input sensitivity/Impedance

PHONO (MM)..... 3.0 mV/47 kohms

CD/AUX, TAPE,

VIDEO ..... 200 mV/47 kohms

#### Frequency Response

PHONO (RIAA standard Curve) ..... 20 Hz-20,000 Hz...  $\pm 0.5$  dB

TAPE, CD/AUX..... 10 Hz-70,000 Hz...  $\pm 0.5$  dB

#### Signal to Noise Ratio

PHONO (MM)..... 73 dB

TAPE, CD/AUX,

VIDEO ..... 100 dB

#### Graphic Equalizer

Center Frequency ..... 63 Hz, 300 Hz, 1 kHz,  
3 kHz, 10 kHz

Control Range.....  $\pm 12$  dB

### FM TUNER SECTION

#### Tuning Frequency

Range..... 87.5 MHz-108 MHz

Antenna Impedance..... 300 ohms balanced  
75 ohms unbalanced

Usable Sensitivity..... 11.2 dBf (2.0  $\mu$ V)

#### 50 dB Quieting Sensitivity

MONO..... 17.2 dBf (4  $\mu$ V)

STEREO..... 38.2 dBf (45  $\mu$ V)

#### Note:

Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

Kenwood poursuit une politique de progrès constants en ce qui concerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

Kenwood strebt ständige, Verbesserungen in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

#### Signal to Noise Ratio at 65 dBf

MONO..... 76 dB

STEREO..... 72 dB

#### Total Harmonic Distortion at 1,000 Hz

MONO..... 0.2%

STEREO..... 0.3%

Frequency Response..... 30 Hz-15,000 Hz  $\pm 0.5$  dB

Stereo Separation..... 40 dB at 1,000 Hz

Selectivity..... 53 dB at 400 kHz

Capture Ratio..... 1.2 dB

Image Rejection Ratio ..... 40 dB

IF Rejection Ratio..... 86 dB

Spurious rejection Ratio. 80 dB

AM Suppression Ratio.... 57 dB

### AM TUNER SECTION

Tuning Range..... 530 kHz-1,610 kHz (with the AM tuning interval set at 10 kHz)

531 kHz-1,602 kHz (with the AM tuning interval set at 9 kHz)

Usable Sensitivity..... 15  $\mu$ V (440  $\mu$ V/m)

Signal to Noise Ratio ..... 50 dB

Selectivity..... 25 dB

### GENERAL

Power Consumption ..... 2.5A.....U.S.A. model  
150 W.....Others

Dimensions ..... W:420 mm (16-9/16")

H :109 mm (4-5/16")

D :229mm (9")

Weight..... Net. 5.3 kg (11.7 lb)

## KENWOOD CORPORATION

Shionogi Shibuya Building, 17-5, 2-chome Shibuya, Shibuya-ku, Tokyo 150, Japan

### KENWOOD U.S.A. CORPORATION

2201-East Dominguez Street, Long Beach, CA 90810;  
550 Clark Drive, Mount Olive, NJ 07828, U.S.A.

### KENWOOD ELECTRONICS CANADA INC.

P.O. Box 1075 959 Gana Court, Mississauga, Ontario, Canada L4T 4C2

### KENWOOD ELECTRONICS BENELUX N.V.

Mechelsesteenweg 418 B-1930 Zaventem, Belgium

### KENWOOD ELECTRONICS DEUTSCHLAND GMBH

Rembrucker-Str. 15, 6056 Heusenstamm, West Germany

### TRIO-KENWOOD FRANCE S.A.

Hi-Fi·VIDEO·CAR Hi-Fi

13, Boulevard Ney, 75018 Paris, France

### TRIO-KENWOOD U.K. LTD.

17 Bristol Road, The Metropolitan Centre, Greenford, Middx. UB6 8UP Eng

### KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.

4E Woodcock Place, Lane Cove, N.S.W. 2066, Australia

### KENWOOD & LEE ELECTRONICS, LTD.

Wang Kee Building, 4th Floor, 34-37, Connaught Road, Central, Hong Kong